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THE TRAINING OF THE DESIRABLE PRACTITIONER AND HIS MISSION *

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To you this occasion is very significant, it marks an epoch in your life Finally you are out of school, out of man-made schools Only a little more cramming for the state board examinations and you are free, free from compulsory studies, free to learn afresh that which you ought to know well, and to forget that which is only a disturbing haze in your mind But you ought to be aware that this occasion does not mark the end of all schooling You have not arrived at the terminus, you are only at a station where the roads change You are not celebrating the termination of your medical school days It is your commencement day, you are passing the entrance examination into the school of life, into that particularly difficult life which the medical practitioner has to live In that school you stand under the supervision of no other schoolmaster than yourself You will not have to pass examinations But remember that your markings will be made nevertheless, not only by your own conscience, if you cultivate one, but by that high court composed of your professional brethren, your patients and the public at large—a court from whose judgment there is no effective appeal Your advanced standing is in the community at large, but so are also your failures After years of attendance in that tutorless school of life, many who had their eyes open learned a lesson or two from the penalties they had to pay and the rewards they occasionally received Such veterans are in a position to know the good which the knowledge of such lessons could do his junior brothers in the freshman class of the school of life I have passed a score of years in that medical school without a dean and without medical instructors I have my scars and my medals and, I believe, I learned a thing or two in the battles of medical life When I was honored by the request of the authorities of your medical school to address you on your commencement day, it therefore occurred to me that a discussion of some of the unwritten rules of the school of life of the practitioner might be most appropriate for the occasion

The title of my address reads "The Training of the Desirable Practitioner and his Mission" You can now see that I did not intend to include under this title the discussion of the preliminary training of the practitioner, of the training which he received or ought to receive in his medical school The character of this training is certainly a very important factor in the production of desirable practitioners In recent years a great deal has been written and said on this subject, and judging by the results, there is still room for more saying and writing on that important topic But you are not concerned in this subject, or I shall hopefully rather say, *you are not yet concerned in it*, you are just out of the preliminary medical training, and it is not my intention to talk above your heads to others, to teachers and makers of medical schools It is my wish to talk to you of that which you can do and ought to do, in order to become desirable practitioners I mean to discuss the perpetual self-training of the school-made medical man Now I wish to be understood at the outset that my remarks are not directed to that small fraction of you who are destined to become leaders in the medical profession I hope there are such candidates among you I am at this occasion not interested in their fate, they will take care of themselves without my advices or perhaps still better in spite of them We are not in danger in the United States of not getting medical generals We have leaders in medicine of world-wide renown who received their medical education in some of the lowest of the 150 medical colleges of the United States We had such brilliant medical generals as Beaumont or Marion Sims, great names well known to your school at a period when the medical knowledge and medical practice of the rank and file were miles behind that of the present generation The standard of medical practice cannot be measured by the greatness of our leaders It is the level of the general practitioner, of the rank and file, which indicates the exact position occupied by medical professions in the various sections of this vast country Our interest, therefore, centers in the great majority of you who are going to be general practitioners, and it is my fond wish to be able to indicate to you some of the procedures which may assist you in becoming efficient and desirable practitioners

In suggesting to you to strive to become desirable members of the medical profession, I am not going to deliver a sermon from the top of a mountain, I shall not preach such unusually high ideals which might seem to you to be unattainable I do not deny that I wish to elevate the standard of the practitioner, but in offering an advice I shall not leave the earth I shall discuss the solution of practical questions from a practicable point of view

One of the important questions with which you shall soon be confronted is the proper utilization of time It is highly probable that for two or three years you will have plenty of leisure Use it now to the best of your ability *You will never have such an opportunity again* Use it in the first place to make yourself solid practitioners No matter what shape your medical activities may assume in the future, you must try at the very outset of your career to acquire the fundamental knowledge and skill indispensable to the success of the efficient physician

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* Address delivered on Commencement Day to the Graduating Class of St. Louis University Medical School May 31 1912

As to the method of acquiring it, I confess to some heretical views You hear and read frequently in addresses of leading medical scientists and clinicians that you must acquire a thorough theoretical and practical knowledge in chemistry, physiology, pathology, etc, before you can raise the claim to be an efficient physician Assuming you have all the gifts, energy, willingness and perseverance to comply with this ideal requirement, how long will it take you to attain all this wisdom? Surely not less than fifteen or twenty years What are you to do during this long preparation, and what shall be the fate of the patients which you are bound to acquire in the first decade after your graduation? They, too, are entitled to the treatment of an efficient practitioner And who of those high priests who preach these sermons master all these sciences? I feel confident that there are extremely few great physicians who really master even a single one of these sister sciences, besides his own, the science of medicine proper It is one of those sermons which exhorts you on a Sunday morning to be saints, while preacher as well as listeners are conscious that they will remain for the rest of the week simple mortals, afflicted with all the sins to which flesh is heir The worst of it is, that by asking too much, you do not get even a little The truth of the matter is that 95 per cent of the work of the busiest physician can be done, and done well, by a very modest quantity of medical knowledge But this modest quantity must be thoroughly mastered and mastered early, if you wish to become a successful, desirable physician

The time for acquiring the mastery of it is during that interval of liberty between the termination of your medical education and the acquisition of a supporting medical practice I am speaking in the first place, to the majority of you who are not going to have hospital appointments To you I say Do not lose any time Proceed at once to acquire methodically that knowledge of the fundamental facts with which the busy practitioner has to be thoroughly familiar in most of his daily work And let me make this confession of faith Although you had to study a goodly number of more or less thick books, I feel certain that the indispensable knowledge which you will have to master in your immediate future could be put into a book of very modest proportions It would be a service to younger physicians—and to some older ones, too—if busy, substantial practitioners would publish detailed tables of their daily work occurring during a week or two at the various seasons of the year It would show how much of the practitioners time is taken up by comparatively insignificant ailments and would also show the percentage and the character of the more serious diseases which claim the attention of the busy practitioner The knowledge of these ailments and diseases the young beginner should have on the tip ends of his fingers Such a list you could perhaps obtain from members of the faculty

To me it seems that of the more serious diseases you ought to know well all about tuberculosis, the pneumonias and pleural effusions, about endocarditis and myocarditis about gastric and duodenal ulcer, about biliary and renal colic about appendicitis, volvulus, intussusception and incarcerated hernia about typhoid diphtheria meningitis and otitis and its possible complications, about the eruptive diseases and their complications and sequelæ about erysipelas, about malaria the various forms of syphilis, gonorrhea and rheumatism, about diabetes and nephritis Of course, this is by no means a complete list You must know further all about alarming symptom-complexes, about gastric and intestinal perforations, about pulmonary and cerebral emboli, about pulmonary, gastric, intraperitoneal and cerebral hemorrhages, about pulmonary edema and laryngeal stenosis about eclampsia and coma You must acquire a thorough knowledge of how to meet various emergencies, how to stop hemorrhages, how to perform artificial respiration, and you must know the poisons and their antidotes I do not mention here the incidents of surgery, gynecology and obstetrics, with some of which every practitioner must be well acquainted

When I said, you must know all about these diseases and conditions, I did not mean that you ought to study up the theoretical side of it, the physiology, pathology and etiology On the contrary, I advise against all theoretical studies until you have thoroughly mastered the indispensable practical side Study thoroughly the symptomatology, course and treatment of the frequent diseases Do not read your text-book from page to page Pick out the necessary chapters You probably have your notes and books, it is best, however, to read on the same subject in various books, you gain a deeper and more judicious knowledge of things But be careful in your selection of text-books We have many uncritical writers who do not possess even good judgment as to what to copy Do not use large hand-books at the beginning, a translation of Strumpell s text-book is greatly to be recommended I shall repeat, I advise that you acquire a thorough book-knowledge of the essential things a busy practitioner has to deal with I believe that this knowledge, which is not very extensive, can, by diligent work, be mastered in three or four months Do not believe that you know it now, because you passed examinations in all these things You do not know them "for power," and you will soon forget them all And even if you know them, by singling out the essential things and studying them well, you create in your mind a very valuable ready-working capital

But now, after all these acquisitions, do not believe that you have already real knowledge Book-knowledge becomes valuable only after it has been thoroughly tested in practice, it makes the testing easy and very profitable Now the time has come for you, when you must try hard to come in contact with actual practice, this is absolutely indispensable Try to connect yourself with some dispensary, even if it is as only the third or fourth assistant But be on your guard Dispensary work, with the large number of patients, the careless routine procedures, the hasty, superficial examinations and the prescribing by numbers, breeds inefficiency But with your careful preparation and with a clear notion of that which you want to acquire, you run no danger Try not to have too many patients, and if you can not avoid it, try to select a few patients for a more careful study, you and the patients will benefit by this Perhaps you could take some patients home for a more careful examination, but avoid any possible suspicion that you wish to use them for any material benefit, or for advertisement, that would be the beginning of the destruction of your reputation In these studies, learn first of all how to observe without any preconceived notions, how to elicit and collect symptoms Try to master the art of percussion and auscultation and to identify all these symptoms with your theoretical knowledge of them You had better not trust yourself at the beginning as to your recognition of the nature of your observations and the correctness of your conclusions, ask your neighbor for his opinion Do not be ashamed to ask and do not mind if it happens that your neighbor looks down on you on that account If you continue asking it will not take long before everybody around you will know your mettle Incidentally, do not try to show your neighbors that you know more than they, let them find it out for themselves For the few patients whom you are studying in particular do not employ the dispensary method of prescribing, learn how to prescribe in a specific way for the specific trouble of that particular patient

Besides the service in a dispensary, try to attach yourself to such an out-patient service in which you could call on poor patients at their homes, in this way you will have an opportunity of studying acute diseases Gradually you will acquire private patients of your own Let us hope for your ultimate success that your private practice will grow slowly An early and rapid growth of practice interferes greatly with the proper growth in efficiency of the young practitioner In the early years of growing experience each patient must be examined slowly and thoroughly The diagnosis should be arrived at only after a careful analysis of anamnesis and symptoms Do not look for pathognomonic symptoms Pathognomonicity is conducive to mental decay Every case which requires thinking, analysis and conclusions contributes to your mental and practical training Make notes of your cases, and at home in your library, go over your conclusions again consulting the corresponding chapters in your text-books

During this period of growth fill up gradually the gaps of your knowledge regarding the less frequent diseases Learn and acquire gradually a tolerable mastery of the manual execution of indispensable diagnostic and therapeutic measures, like spinal puncture and intraspinal injection, laryngeal intubation, the dexterity in the proper use of the stomach tube and the introduction of a urethral catheter Acquire one after another a certain degree of mastery of the technic of microscopic and chemical analysis of the gastric contents, urine and feces, of the microscopic examinations of blood and of some clinical methods of bacteriology Learn to use a blood-pressure apparatus and learn to decipher the meaning of a sphygmogram, cardiogram, phlebogram electrocardiogram and *x*-ray pictures Obtain also some knowledge and dexterity in laryngoscopy and ophthalmoscopy When you will become a very busy practitioner, you will have most of these manipulations done by others, who may be experts in these lines But if you have acquired some decent knowledge about these things yourself, the laboratory experts will not talk to you above your head, you will know how to reduce each statement to its proper level, and many an erroneous diagnosis will thus be avoided It is pitiful often to listen to old leading practitioners, using terms of modern medicine, with the fundamentals of which they have neglected properly to familiarize themselves

So far I have talked to you from a purely practical point of view The advice which I have given is, I believe, not hard to follow, and if you are serious in your purpose and diligent in your work, you will develop within seven or eight years into a competent, trustworthy physician But a desirable physician must be more than that, and I have a few more things to say

In the first place, any and every practical physician ought to try to keep up some affiliations with the scientific side of medicine Of course, he must try to see now and then autopsies which often clear up the nature of some obscure disease But physicians of the newer generation ought to become familiar with the idea that the changes found after death from a disease are often merely the consequence of the disease and not its cause or its nature A disease is a functional disturbance and physicians must accustom themselves to think in functional terms It would be of great help to them if, now and then, they would study up one chapter or another of modern physical or chemical physiology or physiologic pathology Besides the acquisition of knowledge and the training of the mind in the practice of thinking in functional terms, such occasional occupation with purely scientific problems elevates the standard and the general tendencies of such physicians

Moreover, you ought to be aware that the medical knowledge which you have acquired in your medical education presents only a phase in medical history That which you consider now in medicine as conservative, safe and indispensable was once new and met *with violent opposition from the leading conservative* men of that time In the face of the rapid progress medicine is making in our day, the efficient physician must make up his mind to be ready to pick up such new things which have definitely proved their right of existence Metabolism, immunity, anaphylaxis and chemotherapy present such functional problems of which the desirable physician ought to obtain a broad understanding

In discussing the self-training of the young practitioner I would like to say a frank word on therapeutics Many of our leading solid clinicians think lightly of therapeutics—unless it be water or air—and a good many of our fine, well-trained pharmacologists often speak sneeringly and contemptuously of the drugging habit of the busy practitioner But let me say this Our great medical teachers received their training in clinics closely adjoining the autopsy-room, and won their spurs by making brilliant diagnoses of such pathologic conditions which permitted early their verification on the autopsy table "Interesting" cases of this type, which naturally rarely benefit by drugs and which form mostly the bulk of the work of the great clinician in his hospital activities as well as in his consultation practice, give a wrong impression of the importance of drugs in general medical practice In the work of very busy and efficient practitioners, however, who trust drugs and know when, how and which of them to use, such classical cases as above mentioned form only a small fraction It is instructive to know how some of these great clinicians treat their patients when they have to deal with them all alone from start to finish In a long experience I came across prescriptions by some of our great men which were a revelation to me I could fill a page or two with such indiscreet gossip Polypharmacy, incompatibilities and even notorious patent nostrums were there

As to my friends, the pharmacologists, I risk to say that it would have been better for therapeutics as well as for themselves, if they would *have had in addition to* their scientific training an actual training in medicine, at the bedside of patients, and not of patients in hospitals, where there are practically no responsibilities to any one in particular, but at the bedside of a private
patient, whose mother or wife, ev from sleep
lessness and crying stares very move
ment of yours and begs y th
cease to be a hypercritical
for pure science to restr

ments only, the validity of which has been definitely proved, according to your notion of proof In medicine there is human life and happiness at stake, and you ought to recognize the undeniable fact that some claims may be true, even if you with your methods have not yet been able to prove them The history of the use of iron in the treatment of chlorosis ought to be a lesson While every physician could tell you from his own knowledge that, say Blaud's pills act in these cases like a charm, great laboratory men like Bunge and Schmiedeberg denied persistently that inorganic iron can be absorbed and thus capable of supplying the iron deficiency of the anemic patient The struggle lasted nearly a quarter of a century The trouble with the men, trained exclusively in laboratories, is twofold First, they do not seem to see that a medical fact, observed critically by a capable physician, deserves as much credence and consideration as a fact developed by laboratory methods, and, second, that the laboratory man offers here positive opinions in a field in which he has had no experience

I may say here that great physicians, like Traube and Kussmaul, who were busy general practitioners before they entered on their brilliant scientific clinical careers and whose training has been more in the experimental laboratory than in the dead-house, were never infected with therapeutic nihilism, though they dwelt then in the midst of this mental epidemic

While I thus caution you against teachings which speak contemptuously of treatment by drugs I have to warn you against the danger of uncritically accepting statements made in favor of numerous drugs Not only are there a great many old medical compounds which the sound practitioner will do well to eliminate from his list, but he ought to be very discriminative in accepting new drugs which are backed up by seemingly reliable laboratory or clinical authorities Here you will be often confronted with premature, uncritical statements which do not stand verification This, however, [illegible] still comparatively innocent The greatest danger threatens you from much worse quarters There are base unscrupulous individuals and concerns abounding in this country, and apparently not few of them in your city, who select the sick and the suffering as the easiest prey for their greed The drugs which they offer, some worthless some dangerous, are praised beyond measure They are after you, the young practitioner to become their innocent tool They spare no money to trick you into it They employ all sorts of talents, journalistic, clinical and laboratory They publish their own journals which they offer you for one dollar a year or for less They smuggle their articles into some of the five-dollar journals, their hirelings present papers in low and high medical and scientific societies They are for science for progress in medicine if that is a good bait, and they are for medical liberty They have their men in the United States Congress, and in some governmental departments They are everywhere and when you are not on your guard, they will get you But a desirable physician should do more than resist passively he should actively assist in the war which the united profession of this country is trying to wage against this great danger to the physical moral and mental life of the nation

In the selection of the drugs which you wish to employ do not be influenced by the advertisements no matter in what journal neither by the literature which is sent to you whether with or without samples of the drug Select carefully the medical journals which you are reading, and be also on your guard in the selection of the articles which you wish to read with care By attentive frequent perusals of medical periodicals you will soon acquire a knowledge of who is who in the medical profession in this country, from whom you can and ought to learn, and whose statements you may trust Besides the dividing line between knowledge and ignorance, there is the line which separates the decent from the indecent physician This division is more important than the first one Throw your indifferent brethren to the indecent ones and stick closely to the class of decent physicians They need not be saints, every-day common decency is good enough Be sure that they do not sell themselves, their science or their *patients* to the highest bidding physicians and surgeons or to drug manufacturers

Those who are in the practice of medicine, and those whose task and duty it is to make the practice efficient ought to become imbued with the idea that the treatment of the patient is the paramount object of the practitioner The very fact that great stress is to be laid on treatment will assist greatly in the development of its efficiency The enlistment of men of genius in behalf of therapeutics brought us in recent years the marvelous new facts and principles of the serum treatment and chemotherapy The actual curative remedies are still small in number, but on the basis of these principles more may be expected But the prevention of the fatal outcome of a grave disease is not the only aim of therapeutics Treatment covers a variety of objects, to be attained in various ways The patient must be made comfortable even in hopeless diseases Self-limiting diseases must be attended in order to obviate errors of nature or of attendants, and an attempt must be made, where possible, to accelerate the recovery All sufferings, even of only temporary nature, must be alleviated Our old clinicians had and have too much contempt for the treatment of symptoms Salicylates which surely relieve rheumatic pains should be given even if they do not accomplish a cure, or even if the rheumatic fever would have gotten better without salicylates — if the sufferer could have waited long enough Of course, no treatment should be given which could diminish the patient's chances of recovery, and no such treatment should be given which increases the patient's suffering and discomfort without having reliable evidence that it increases his chance for life It is an interesting psychologic phenomenon that some medical men who are drug nihilists would insist on giving cold baths to typhoid patients who beg to be left alone, with flimsy statistics as the only proof for the usefulness of the method I hear that some of our confreres became milder in their requirements after they had to take a dose of their own medicine The story repeats itself in the cold-air treatment, an ardent advocate of the method recovered from his pneumonia without its aid

Lighter than air is psychotherapy Do not practice it consciously you are training yourself to be a humbug Have a thorough knowledge of your subject which entitles you to speak with conviction, be sincere in your dealings with your patient so as to gain his confidence, have sincere sympathy with your client which ought to manifest itself without obvious demonstration, be practical in your advice, and talk to the patient and his surroundings in common-sense terms — and you will have practiced psychotherapy honestly and successfully

During health the human being is his own guide When he becomes sick he loses his bearings and the physician is called on to lead him through and out of the wilderness. But the physician is and ought to be more than a guide to the patient; he ought to be his natural protector, now more than ever. In the years gone by patients, with rare exceptions, had no adversaries. With the discovery that most of the acute diseases are infectious the recognition came to light that each patient is more or less a menace to his surrounding, and it became the painful duty of the community to look out for the protection of its healthy members. The poor patient, besides his affliction and helplessness, has now an official enemy, and the health officer is the prosecuting attorney for the community. It is therefore, now the natural duty of the physician to be the attorney for the patient. It is certainly the duty of every enlightened physician to assist in the protection of the community against the spread of diseases. But at the same time he ought to see to it that no measures and especially no harsh measures, should be taken against stricken patients, based only on whims and ephemeral theories of half-baked sanitarians, and that the measures should not be carried out with harshness but with charity and kindness.

A desirable practitioner ought to be aware also that the particularity of his calling requires of him a higher standard of ethics. A physician who is ethically not higher than the average man is ethically lower than the average man. I shall offer two reasons for this dictum. The activities of the ordinary man are in most cases susceptible to supervision by his fellow men. The greatest part of the activities of the practitioner, however, are not accessible to outside control. Such an office of trust requires a higher standard of morals. Then there is the fact that the physician deals with situations which very frequently have tragic elements of distress in them. In disasters humanity asks for altruism, the legal laws of selfishness are suspended, you are asked why you have saved your life in preference to that of a woman or a child, strangers to you. Now, my young friends, I do not propose to you to be a hero every day of your life. I am afraid I could not be one even on one day of my life. But it is not a sacrifice to be every day of your life a desirable practitioner, on the contrary, it is a great pleasure. I congratulate you all and wish you great success.

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THE ADDITION OF A FIFTH YEAR TO THE MEDICAL CURRICULUM *

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The remarkable advance in medical education in the last quarter century has concerned both the kind and the amount of the training demanded of the medical student. Laboratory and practical courses, in which the students, in small groups, are brought into immediate contact with the materials to be studied, and thus obtain knowledge at first hand, have largely supplanted the didactic lecture and recitation, especially in the fundamental branches. Unfortunately the introduction of similar methods—of objective teaching—in the clinical subjects has made little progress, excepting in a few schools, and the lamentable deficiency of our medical students in practical experience at the bedside is keenly realized. How serious and deplorable is this deficiency has been graphically set forth by Mr. Flexner, of the Carnegie Foundation, in his Report on Medical Education.

The amount of education demanded has been increased at two points—the extent of preparation exacted for admission to the medical school and the length of time required to be spent therein. As the successive steps in advance have been taken, the decision as to where the increase should be made has not always been wise. When, for example, about fifteen years ago, a general increase was made in the curriculum from three to four annual sessions, it would have been better if, in lieu of this, the advance had been in the premedical requirement, this *requirement being at that time in most* schools, about two years of high-school work rather loosely enforced. Much more would have been accomplished in the direction of elevating the standards of the medical profession had the emphasis been placed at that time on a fairly adequate preparation for medical study.

Fortunately, during the last five or six years rapid progress has been made in this direction and with about thirty medical colleges now exacting two years of college work for admission, with five of the state boards of medical examiners demanding the same as a prerequisite for licensure, it seems pretty certain that this will be the uniform standard of the medical schools in the northern states at least, within the next decade. With the present conditions in most of the secondary schools, and while so large a proportion of students enter college at 21 or older, and the medical school at 24 or later, it seems unwise to contemplate any further advance in the requirements for admission to the medical schools, as a universal standard, in the near future. Nothing less than this, however, will suffice to give the student adequate preparation for the study of medicine under existing conditions. One year of college work is not enough to afford the requisite training in English, mathematics, physics, chemistry, biology and foreign languages, notwithstanding the fact that the Council on Medical Education of the American Medical Association has recommended such a curriculum of one year.

If the premedical curriculum may be regarded as satisfactorily determined for the present, the next step in advance in medical education at once the most needed, and, under the right conditions, the most feasible, is the addition of a fifth or practical year to the present course of study, this year to consist of service as an intern in a hospital, under supervision of the faculty or, in exceptional cases, for those who look forward to a career of teaching and investigation, of advanced and research work in one or more departments of the college. This fifth year should precede the conferring of the degree.

The feeling is universal among medical educators that medical graduates are entering into practice with too meager first-hand knowledge of disease — such knowledge as can only be gained by actual experience, at the bedside under careful supervision. In the earlier years of medical education in the United States, such experience was secured by an apprenticeship with a preceptor. This, indeed, constituted the sole means of preparation of a considerable proportion of medical practitioners until well after the middle of the last century. For the remainder, the one or two sessions of medical lectures, of four or five months each, was the incidental rather than the chief part of their training. The rapid development and growing importance of the fundamental medical sciences [illegible] increase in the amount of time requi[illegible] the c[illegible] the changing con[illegible] more and more difficult for the preceptor to give his student-apprentice effective instruction, and so his function in the training of the student became gradually less, and the title of preceptor merely nominal The passing of the preceptor, and of the excellent practical training which the student received at his hands, was a real loss in medical education, but one which seems to have been inevitable Meanwhile the opportunities for practical experience in the hospital have enormously increased The hospital idea has grown rapidly The public is becoming educated to the fact that the hospital is the best and most economical place for the sick — medical, surgical or obstetric Few cities of 15,000 or more inhabitants are to-day without one or more hospitals

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* Read before the meeting of the Association of American Medical Colleges, Chicago, Feb. 28, 1912.

I have sought to ascertain the number of hospitals and of hospital beds in the United States which do, or which should, admit interns and afford them reasonably good opportunities for practical experience I have taken the following figures from the American Medical Directory, third edition The data these supplied are not perfect, as many institutions fail to report the number of beds or to indicate clearly the character of the hospital With the data at hand the hospitals having twenty beds or more, may be grouped as follows

1 Hospitals associated with, and more or less completely controlled by medical schools of these there are 104, with 22,365 beds

2 Hospitals located in cities where medical schools are situated, but not at present controlled by them, of these there are 645, with 73,535 beds

3 Maternity hospitals, located, with few exceptions, in cities having medical schools, seventy-one, with 4,115 beds

4 Hospitals, public and semi-public, located in cities not having medical schools, of these there are 1,381, with 82 320 beds

5 Public hospitals for the insane, of which there are 173, with an aggregate of 183,665 patients

6 County and state infirmaries, 267, with 30,100 beds

7 Private hospitals comprising (*a*) those for nervous and mental diseases of which there are 124, with 12,285 beds, and (*b*) those for medical and surgical and special disorders of which there are ninety, with 4,990 beds

8 Hospitals for contagious diseases, there are fifty-nine, with 6,795 beds

9 Hospitals and sanatoriums for tuberculosis, of these there are 266, with 21,550 beds

10 United States marine, Army and military hospitals, of which there are 79, with a total of 8,255 beds

Each one of these institutions, with the exception of those for the insane and some of the infirmaries for chronic diseases, needs an intern for every twenty or twenty-five beds Even with our present excessive output of medical graduates each year (at least 50 per cent in excess of the needs of the country), there should be a vacant internship awaiting every graduate in medicine

Several of the stronger medical schools report that not only has every graduate from these schools for the last four or five years been able to secure an internship in a good hospital, but the demand for their graduates to fill such positions has exceeded the supply

In 1906 one medical school added a fifth year to its curriculum, made optional and leading to a *cum laude* degree Five other schools have since added a fifth year as an optional addition to the course of study and one the medical department of the University of Minnesota, now requires this year for graduation In Germany a practical year has recently been made compulsory and a similar requirement obtains in some other foreign countries The uniform adoption of a curriculum extending over this hospital year is recommended by the Council on Education of the American Medical Association Is it feasible? If so what steps are necessary to put it into operation? What regulations should be prescribed in reference to it?

The plan is desirable and practical for the school which is prepared for it and which can secure the necessary hospital connections and control to insure a place under the right conditions, for all of its students during this intern year A serious mistake will be made, however, by any medical college which rushes into the scheme hurriedly, just because the idea is "in the air," unless it is able to meet these essentials

In the first place, no school should add a compulsory fifth year until its entrance requirements have been made equal to those now demanded by the conditions of the time as exemplified by the twenty-nine colleges now exacting two years of college work beyond the high school One year is not sufficient, and especially will any attempt on the part of the detached medical school to give instruction in the required physics chemistry biology and modern languages, be a serious step backward

The necessity of securing the proper connection with hospitals involves the large question of the relation of the medical school and the hospital — quite the most vital question to-day in medical education in the United States What should that relation be? It goes without saying that the dispensary and hospital constitute the laboratories for the clinical branches, as do the dissecting-room for anatomy, the morgue for pathology, and the laboratories of physiology, biologic chemistry pharmacology, histology, embryology and bacteriology for these several sciences Mr Flexner says in his report, in reference to control and utilization of the hospital for teaching and research, that the medical school should bear exactly the same relation to the hospital as it bears to these other laboratories It is obvious, however, that there are very important differences from the nature of the case The dissecting-room, the morgue and the other fundamental laboratories serve exclusively the purposes of investigation and teaching There are practically no limitations on the use of their materials for these purposes The hospital is primarily a place for the care and cure of the sick Whatever other purposes it may serve, its use, therefore, must always be conditioned on, and subordinate to, that one vital fact — the welfare of the patients No use of these patients for any purpose can for an instant be tolerated which is in any degree prejudicial to their welfare, entails unnecessary suffering or delays their restoration to health Moreover, in the long run, it is in the best interest of science, as well as humanity, that no patient should be used as a clinical subject against his will The use of a pauper patient against his will for instruction or investigation on the theory that he, in this way, makes return for his free treatment, is wrong in principle and pernicious in practice On the other hand, it is seldom difficult for the tactful, kind physician to secure the consent of a patient, rich or pauper, to serve as a clinical subject

While the use of the sick for purposes of investigation and instruction must ever be subordinated to their welfare, when conducted under suitable regulations and supervision such use is not only not inimical to the patient, but decidedly in his best interest The hospitals where complete and accurate clinical histories are written, where thorough diagnostic methods are carried out by modern methods, in a well-equipped pathologic laboratory, are, almost without exception, hospitals under the control of a high grade medical school and in which instruction and research are daily carried on On this point there is unanimity of opinion by all who are most competent to speak Says Dr Keen

> I speak after an experience of forty years as surgeon to a half dozen hospitals, and can confidently say that I have never known a single patient injured, or his chances of recovery lessened by such teaching Moreover, who will be most slovenly and careless in his duties, he who prescribes in the solitude of the sick chamber and operates with two or three assistants only, or he whose every movement is watched by hundreds of eyes alert to detect any false step? I always feel at the Jefferson Hospital as if I were on the run with a pack of lively dogs at my heels

Miss Barfield after an ample experience as nurse and patient, speaks as follows

> As a matter of fact, in a properly administered hospital, medical schools are a protection to the patient rather than otherwise, for it usually means that the hospital is a very live one In teaching hospitals I think that, on the whole patients are generally better nursed, for everyone is kept up to the mark, including the professors

And the committee appointed in 1905 to inquire into the financial relations between the hospitals and the medical schools in London says

> We find that the pressure of a body of eager young men watching the proceedings of their teacher has a tendency to keep the medical men on the alert and to counteract the effects of the daily routine of their duties

Indeed, the hospital needs association with the medical school quite as much as the college needs the clinical material of the hospital Hospital boards are beginning to realize this, and some significant demonstrations of this awakening are of recent occurrence About three years ago the board of directors of a children's hospital, which had been in existence several years, voluntarily sought and entered into affiliation with the faculty of a medical school which had for several years controlled another hospital to the mutual satisfaction and advantage of all concerned The board asked the faculty of the college to assume entire responsibility for the medical conduct of the hospital, the existing medical staff resigned, and the faculty was given full power to nominate a new staff, which, by the special request of the board, was to include no physician who was not a member of the faculty, clinical instruction and research to be conducted in the wards as directed by the faculty Within a year another institution has voluntarily sought and secured a similar relation to the same college These facts are, to my mind a pretty certain indication of the trend of the times in reference to the relation of existing hospitals and medical schools in some of the cities of the United States And does it not offer a more satisfactory and feasible solution of the needs of the medical school for clinical material than does the proposition that the medical school must own and maintain its own hospital?

The hospital being primarily an institution for the care and cure of the sick, its maintenance is not properly a function of the medical school, whose business is specifically educational — including research In most instances the medical school has come into existence to find the surrounding community already abundantly supplied with hospitals — the evidence of which is furnished by the fact that these hospitals are much of the time clamoring for patients to fill empty beds True, the conditions in these institutions are usually far from satisfactory, but even so shall the medical college duplicate hospital accommodations already equal to or in excess of the demands of the community, at enormous expense for construction and endowment, or shall it seek to establish the right relations, and secure the necessary control of existing institutions, which control, as has been pointed out, would be to the great advantage of both hospital and school? The great medical schools of European countries, where the control of clinical material is most satisfactory and where the best scientific work has been done, do not as a rule own and maintain hospitals They use the great municipal or state hospitals maintained by the city or state The corresponding hospitals in our own country, the management of which, tainted by ward politics, has been up to the present time so unsatisfactory from every point of view, nevertheless contain, and will continue to command, the best possible clinical material, such as no non-public institution can hope to duplicate

In those rare instances in which a large provision has been made for research, either in the medical school or in an institution devoted solely to scientific investigation, there is advantage in having a relatively small hospital, liberally endowed, in which can be collected groups of cases of this or that disease, primarily for the purpose of an exhaustive and protracted study Into such institutions patients enter with the express understanding that they are to be made the subjects of investigation — not of course, to their detriment Here the purpose of investigation supplants the care and cure of the sick as the primary motive, and the burden of maintenance falls properly on the endowment for research

It seems to me, therefore, that even for the purpose of securing clinical material for the necessary instruction in the junior and senior years of the present curriculum, the medical school, with rare exceptions must find it through affiliation with existing or to-be-established hospitals, on a pecuniary foundation distinct from that of the medical school itself, and with persistent and intelligent effort, I believe, this can be done When it comes to the question of finding places for all of its students in their fifth or intern year, there can be no question about which course the college must pursue No one, surely, would contemplate the possibility of a medical college undertaking the ownership and maintenance of a hospital of such magnitude as to supply internships to all of its graduates To supply places for all of its students the students must find places as they are now doing in detached hospitals, in the cities where the colleges are located, as well as in other cities, more or less distantly removed from the medical schools It is of course not possible, nor is it necessary, that the medical school should have the same degree of control over the hospital for this purpose as is indispensable for the clinical work of the earlier years, and for the conduct of research by faculty and students Certain things it must insist on, however, if this fifth year is to be of the largest possible value to the student The mere securing of an internship in a nondescript hospital in the perfunctory manner in which it is so often done does not suffice

The hospital must h [illegible] not [illegible] must [illegible] ite a good system of cl [illegible] he [illegible] write accurate and

It must have a well-equipped clinical laboratory convenient to the wards where he may make the necessary examinations of urine, blood, sputum, etc, examine blood cultures, and carry out in short, all of the approved modern methods of laboratory diagnosis

Some one or more members of the staff must be able and willing to supervise closely the work of the intern correct his mistakes, and give him needed instruction in the details of the practice of medicine which he has not yet mastered These members of the staff will cooperate most cordially and effectively with the faculty if they are made extramural members of the faculty of the school They should attend faculty meetings as often as possible, and should feel themselves to be an organic part of the teaching body

It will, of course, be of great advantage if the hospital has a school for nurses, and conducts the nursing work of the institution along approved modern lines It will greatly enhance the quality of the service rendered by the hospital to its interns, and not less to its patients if it has a trained, salaried pathologist who gives all or most of his time to the work of the hospital, and who is doing original investigation as are other members of the staff In time all of these things must be insisted on, but for the present trained nursing and research work are unknown in so many otherwise acceptable hospitals that their general introduction may be secured only in the course of time

The regulations prescribed by the faculty for the intern should be such as to insure that this hospital year be of the largest possible educational value to the student The rules drawn up by the faculty of Rush Medical College in 1905 were set forth in a circular announcing the installation of the fifth year leading to the *cum laude* degree As this announcement may not be without interest in this connection I quote it in full

FIFTH YEAR

Beginning with the sessions of 1905 6 a fifth year is added to the curriculum, which, for the present, will be optional The work of this year will be that of

A. Graduate work in one of the departments of the college, or

B An internship in a hospital

On the successful completion of this fifth year he will receive the degree of Doctor of Medicine *cum laude*

A The year of graduate work may be taken either

1 In a fellowship, by students who may be appointed to such positions, or

2 As a graduate student

In either case the candidate must be in residence at least three quarters and complete the equivalent of seven majors of work in some one department, or of nine majors in three or more departments, and present a satisfactory thesis The candidate must be recommended to the faculty as entitled to the degree by the department in which the graduate work has been done

B Fifth year in an internship

CANDIDATE

1 Every student wishing to take the fifth year as an intern shall announce his intention in writing to the dean of medical students before the last term of the quarter in which he expects to graduate

2 The internship may be procured by competitive examination or by appointment

3 Each candidate shall during his service, be under the frequent and close supervision of a member of the faculty, to be designated as hereinafter provided

4 He shall make report to this supervising member of the work he is doing at least once a month Such report shall state the number and nature of the cases he has had under his care during the month, and the number of days (if any) that he has been absent from his work, and for what cause

5 At the end of his year of service he shall submit to his faculty supervisor copies of the complete original histories of at least ten (10) of the cases that have been under his care, and which were written by him, the patients' names to be omitted. These shall be submitted to the committee of examinations for the *cum laude* degree

6 At the end of his term of service either (a) he shall present a typewritten thesis embodying the thorough study of a case or group of cases, including their thorough examination by modern clinical tests, which must be satisfactory to the committee, or (b) he shall pass an oral and practical examination before the committee at a time and place to be designated by the committee

7 He shall be present at the commencement when the degree is conferred, no degree is conferred *in absentia*

FACULTY SUPERVISION

1 During the winter quarter of each year the president of the university, the dean of the faculty, and the dean of students, as a committee, shall designate

(A) A committee on examination for the *cum laude* degree consisting of five of the faculty members, selected from at least five of the clinical departments (medicine, surgery and obstetrics to be always represented), who shall serve for the college year, beginning with the succeeding summer quarter, and

(B) Such a number of supervisors as can most conveniently take charge of the work of the candidates for the ensuing year, for the *cum laude* degree by internships No faculty supervisor shall have charge of more than five candidates

2 The interns to be thus supervised shall be assigned to the faculty supervisors by the committee on examinations for the *cum laude* degree, as above provided for

3 It shall be the duty of the faculty supervisor

(A) To direct and advise the interns under his charge as to the conduct of their work, to the end that it may be of the greatest possible educational value to him or them Such advice must be so given as in no way to conflict with the desires and authority of the staff of the hospital in which the intern is serving

(B) He shall receive from the intern a monthly report of his work

(C) He shall visit, in person, the hospital or hospitals in which the candidates under his supervision are serving, and acquaint himself thoroughly with the physicians of the staff (especially as to their ability and efficiency), with the equipment and the character of its service

(D) Before the close of the year he shall, with the approval and consent of the staff of the hospital, select from the history sheets written in regular daily routine by the candidates under his charge, twenty histories taken at random, and shall examine the same carefully

(E) He shall make inquiry of the attending staff as to whether or not the service of the intern has been satisfactory and make a report to the committee when the candidate under his charge has completed the necessary period of service, as to the manner in which he performed his duties—whether satisfactorily or otherwise—accompanied by his recommendation as to whether or not the candidate should be given the *cum laude* degree

HOSPITALS

1 The hospitals in which service as an intern may be considered acceptable for the *cum laude* degree shall be selected by the committee on relations with other institutions, and be approved by the faculty

2 Such hospitals shall have at least twenty beds

3 The officials of the hospital shall be notified that such and such persons, whom they have selected as interns are to perform their services also as candidates for the *cum laude* degree and the assent of the officials to the arrangement must be secured before the service is entered on

4 There must be on the staff of such hospital at least one physician who is a member of the faculty of Rush Medical

College—either intra- or extramural—unless exception be made by the vote of the faculty.

5. A list of the hospitals approved by the faculty shall be kept in the hands of the deans who will advise inquiring students whether any particular hospital is or is not included in the list.

The requirements imposed by these rules were not unreasonable for a *cum laude* degree which it was planned should be the equivalent of the master's degree (A.M. or M.S.) conferred by a college or university for one year of graduate work. I am inclined to think that they are somewhat too rigid an exaction, at least in the beginning, for a fifth year which is made a prerequisite for the degree of M.D. and therefore for licensure to practice medicine. The amount of routine work now demanded of the intern in many hospitals so consumes his time as to make it very difficult and often impossible for any but the exceptional student to prepare a thesis. This ought not, however, so to be. The intern should have time to study the cases assigned to him thoroughly and carefully, and also pursue exhaustively the study of some disease or condition as presented by some interesting case or group of cases, to explore the literature relating to that topic, and to set down in orderly fashion the results of his investigation. No instruction or experience in his career as a student of medicine is so potent an educational measure as this one of independent creative work. As previously indicated I believe it is possible to extend this plan of cooperation and affiliation to hospitals located in cities more or less remote from the medical school. In such case also, the members of the hospital staffs selected to supervise the work of the intern should be made extramural members of the faculty of the school. Needless to say no such appointments should be made of physicians simply because they are members of the staff of the hospital. They must be carefully chosen because of their known ability and willingness to instruct the student, and to direct his work carefully, and no hospital should be affiliated unless there are such persons on its medical staff. In most of the smaller cities such men are to be found fundamentally as capable of high-grade work in practice, teaching and research, as are many of the members of the intramural faculty. These men would find, in an intimate, vital connection with the medical school and in the work of instructing students, an inspiration and stimulus that would be to their advantage and that they would keenly appreciate. They should visit the medical school from time to time, attend an occasional faculty meeting and become acquainted with its ideals and methods. Their connection with the school should be recognized by the appearance of their names and titles in its bulletins or announcements.

There is no inherent difficulty in the plan of having two or three schools associated with the same hospital, interns from each working side by side as they do at present in some of the larger hospitals, each intern under the supervision of some member of the staff who owes allegiance to the school from which the intern comes, and from which he is to receive his degree. Indeed, there are important advantages in having interns from two or more schools working side by side in the same hospital with a common purpose but stimulating and broadening each other's views and knowledge by the diversity of their previous education.

In these hospitals students in the earlier stages of the medical curriculum — that is in the long vacations succeeding the sophomore and junior years—could with advantage to the hospital, as well as to themselves, serve as externs, performing the simpler duties in the wards and laboratories under the supervision of the staff and the older interns. These long, four to six months' vacations, under the custom which has prevailed since the preceptor became obsolete, are a sad waste of time and inertia. Under the four quarter system in Rush Medical College, the students may, if they choose, continue in residence about ten and one-half months each year. In my observation of many students who have pursued this plan during the last twelve years, I have yet to learn of one who has been harmed physically, or otherwise by continuous work during the four quarters of one or more years of his course of study.

The division of expense between the hospitals and any college with which it is affiliated should not be difficult of adjustment. The hospital, as a place for the care and cure of the sick, should bear the expense of its maintenance for that purpose. The medical school, as an educational institution, must meet any additional expense entailed by the use of the patients for teaching or research over and above that which would be required to give the best possible service to the patient in the effort to restore him to health. By no sort of logical reasoning can it be concluded that it is a just obligation of the college to pay for free beds because the patients occupying them are used for clinical demonstration. It is the function of a charitable hospital to maintain as many free beds — free wholly, or in part—as its income will permit. The hospital, as an institution, is entitled to credit for benevolence just in proportion to the amount which it expends on the hospital care of its patients over and above that which they pay for such service. Credit for free medical service rendered belongs to the medical staff of the hospital and to the college furnishing the staff—not to the hospital as such. The staff should utilize as clinical material any and every patient in the hospital, be he pauper or pay patient, who does not object to being so utilized. Of course the interests of the medical school and every affiliated hospital are mutual; both are engaged in rendering service to the sick, and each should assist the other in friendly cooperation to secure the necessary endowments to carry on their work.

I am not unmindful of the difficulties to be encountered in securing the effective cooperation of hospitals and medical schools, along the lines suggested. Local jealousies among practitioners, keen rivalry between neighboring medical schools, parsimonious economy on the part of hospital boards, "ward politics" which dominate the control of many public hospitals, the lack of adequate endowment for both medical school and hospital — these and other hindrances to good work by both groups of institutions and, therefore, to effective cooperation, must be met and overcome.

It is because of the magnitude of these difficulties that great care and deliberation is necessary on the part of any medical school which proposes to make a fifth or intern year a compulsory addition to its curriculum. The diploma issued by any medical school should stand for thorough, careful education at every stage of the required course of study, and it should not be made to cover a fifth or intern year until the school can give to the student and to the world assurance of the same effective instruction, closely supervised under proper conditions, during this fifth year that is given during the preceding years of the curriculum.

THE RELATION BETWEEN PRACTITIONER AND INVESTIGATOR IN MEDICINE *

LEO LOEB, M.D
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In the meetings of the Sections of the American Medical Association, we mean to record our work and accomplishments in the advancement of medical science and our experiences in applying the facts which science has established at the bedside of the patients This is the primary aim of our meetings And yet it is well that there are provided certain occasions when we may interrupt our work for a short while and look backward to recognize the principles in our work and, perhaps, even to inquire into the conditions under which we are working, in order to remove difficulties and to achieve the greatest possible efficiency

Our Section is one of those that represent if we may thus express it, the pure medical science in contradistinction to the applied medical science, preponderating in the majority of the other sections The Section on Pathology and Physiology is the meeting-place of those members of the Association that devote their time almost exclusively to investigation and to teaching It might, therefore, not be inappropriate to discuss some of the relations as they actually exist between the investigator and the practitioner in medicine When I speak here of investigator I have in mind principally the specialist in the so-called fundamental sciences of medicine

The time at my disposal does not permit me to treat fully of this subject I have to omit all historical considerations I cannot dwell on the increasing importance of science in modern medicine and the many contributions to medical science which we owe to the practitioner in medicine who, striving after the highest ideals finds it possible, after hours of responsible and unselfish efforts in the interest of his patients, to devote a part of his day to the furtherance of medical science I wish rather to restrict myself to the consideration of certain difficulties and misunderstandings which undoubtedly still exist in the relation between the investigator and the practitioner in medicine, in order to help somewhat in removing those difficulties and in making the common work of the practitioner and the investigator still more pleasant and fruitful And even here I shall have to be brief, omitting any detailed discussion trusting that my remarks will rather stimulate a discussion of these problems than present a final statement of the issue

There can be no doubt that certain difficulties exist, they are noticeable in the medical schools, in the institutions for general or specialized medical research, they can be seen among the profession at large In the medical school, the point of controversy is not infrequently as follows The clinicians, objecting to a certain way in which physiology, pathology and pharmacology are taught demand that these branches of science be considered as a direct preparation for clinical work, and that only those parts of the theoretic sciences which are of special interest to the clinician be considered more in detail The teacher and investigator, who is inclined to favor the field of general physiology or pathology is especially liable to call forth criticism on the part of the clinician

Let us now enter into a critical analysis of this clinical point of view We may at once concede that a medical school is a school of applied science intended for the training of men who are to be, principally, not investigators, but practitioners, who apply scientific experience to the solution of practical problems in the life of the community Just as in an engineering school mathematics and physics are taught with a view of preparing the student for the building of electrical apparatus, of bridges and other structures, just as in an agricultural department chemistry is taught so as to prepare the student to cope with the problem of soil fertility, so the student of medicine ought to be taught physiology, pathology and pharmacology in such a way that he can both diagnose disease of the various organs and understand the essential characters of disease, and at the same time appreciate the principles of treatment[1] Apparently the analogy between the principles of instruction for the medical and engineering student is perfect but in reality there exists an essential difference to which, perhaps, due consideration has not always been given

The engineer is given a definite problem which he knows he can solve in accordance with the well-known principles of his science Nothing unusual or impossible is ordinarily demanded of him He is at once in a position to recognize whether or not his task can be accomplished, and if it should not be feasible he will decline There is no uncertainty about the character of his work Either it can or it cannot be done Furthermore, the number of variable factors the engineer has to consider in his work is relatively small as compared with those in the work of the physician The engineer is presented with a physical or chemical problem, the physician with a biologic problem And it is well understood how infinitely larger is the number of variable factors in the latter kind of problems

Thus it is brought about that in a very large number of cases the physician cannot even state offhand whether the task assigned to him can be accomplished or not As a result of analysis and investigation of the conditions in many cases he will find that, while certain parts of his problem are typical model factors, other parts are made up largely of unknowns From the beginning, therefore, the work of the physician is that of a biologic investigator and not merely that of a technician brought face to face with a certain routine work He has to investigate first the character of his problem, whether it is an old or a new problem, and then he will find in the majority of cases that there is, at least in part a new problem involved He cannot refuse to treat a patient because there is a new and, so far, unsolved problem involved An engineer could refuse his services in such a case A physician cannot The patient desires and needs help The physician, therefore, must marshal before him the known parts of the various branches of medical biology, and then he must decide in which direction a solution of the new problem may be attempted In many cases he will find no indication for any procedure He is in the dark as to the best mode of attacking the problem But, however the situation may be, the principal requirement is that he be perfectly clear about the character of the problem he has to face what part of it has been solved and what part remains unsolved This process of thinking must be in the highest sense scientific Very much is demanded of him in the clear analysis of complicated biologic facts The physician must face his problem in the spirit of a scien-

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* Chairman s address before the Section on Pathology and Physiology of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912.

[1] The educational value of laboratory teaching is clearly stated in the excellent address by E P Lyon Equipment and Instruction of the Laboratory Years, The Journal A M A May 27, 1911 p 1530

the investigator of the highest type. But here a great lack, due perhaps, to insufficient training, becomes apparent.

It is just here that the physician often fails, he is not able to circumscribe sharply the known and the unknown parts of his problem. He usually assumes that more is known than is actually the case. In other words, he frequently does not recognize the great number of variable factors that present themselves. He proceeds in a routine manner, ignoring the unknown variables in his diagnostic and his therapeutic work. How much better it would be if he should recognize his limitations and acknowledge that so far he can act as a technician, curing or giving definite relief, and from here on he has to act merely as a friend, sustaining the patient in his suffering through his sympathy to the best of his ability! And in this latter capacity as a friend again a knowledge of biology in the broadest sense will be a most valuable asset for the physician. It will supply him with the philosophic point of view which enables him to elevate the spirit of his patient, to make him as much as possible forget his own difficulties by leading him into a consideration of a larger world of which he forms a part.

We see thus how essential it is for the physician to be truly trained in the spirit of investigation and scientific analysis and how emphatically his daily task calls for a philosophic conception of the universe, a conception which can be best supplied to him through a broad study of biology and the natural sciences in general, of which medical science forms only a part. There is another difference between medicine and other applied sciences. Owing to the enormous size of the unexplored field, to the multiplicity of variable factors and to the most diligent search of many investigators, frequent corrections and additions are made to the fundaments of our science every year; light is suddenly shed on hitherto dark fields, and in consequence our views not rarely have to be modified, or even to be changed radically to a much greater extent than in the engineering or agricultural sciences. The practitioner has to adapt his diagnostic methods, his conception and even his treatment of disease to this development of our theoretic knowledge. He can do so only if the scientific training he received as a student was broad. The more his training was merely technical, directed only to the application to practical medicine of the scientific principles evolved at the time of his student years, the less will he be prepared to follow the further development of medicine, the more stereotyped will be his activity in the practice of medicine and the more liable will he be to apply occasionally methods which in the end might prove injurious rather than beneficial.

It is to some extent a chance effect of historic development in physiology and pathology and pharmacology which determines what is deemed essential in the curriculum of a medical student. Thus, in pathology the teaching is to a great extent anatomic and histologic, in physiology and experimental (or physiologic) pathology the teaching of the mechanical factors in disease is very much favored, as, for instance, the dynamics of the circulation and mechanism of the heart action, while the chemic and toxicologic pathogenic factors which are all important, but the study of which is of more recent development, are, perhaps, not yet quite considered as of equal rank. Courses in experimental pathology, especially, seem to emphasize the mechanical factors in disease, on the other hand, I believe that an experimental study of general pathology must have a broadening effect on the mind of the student.[2] Much of that which is apparently of purely theoretic interest to-day will be of great practical interest to-morrow. As an example, I might cite the laws of surface tension and the practical application made of them in diagnosis in recent years. The investigator and teacher who to-day will deviate somewhat from the usual field not rarely lays the foundation for that which will become routine to-morrow and he may often be more able to impart to his students the spirit of scientific analysis and an appreciation of the theoretic foundation of medicine than another teacher who gives to his students the more conventional course. I fully concede that the student must be well prepared to understand all problems which the clinical study of medicine offers and, also, that he ought especially not to neglect the study of the mechanical factors in disease, but I would on the other hand plead for a much greater consideration of the more general conceptions of biologic science in its relation to medicine, and for great liberality in making it possible for the teacher to express his individual tendencies in scientific medicine.

I now turn to the relation between the practitioner and the investigator in research institutions, and here I must be still briefer. Here again the practitioner, the clinician, not infrequently is dissatisfied with the attitude of the investigator. In the first place, the practitioner feels that he does not receive sufficiently direct assistance in his work from the laboratory worker. He expects the latter to be at his disposal whenever he wishes help in the diagnosis of the disease, and in other ways in the study of the case during life and especially after death. Secondly, he is inclined to make the criticism that the work of the investigator is too theoretic, has not sufficient bearing on those aspects of disease in which he is especially interested and does not bring immediate practical results.

Inasmuch as the medical department of a university represents a combination of a teaching and a research institution, the difficulties encountered in the research institutions may be found to exist in the medical schools. In the first-named special research institutions, it is especially the pathologist against whom the criticism is directed. There is no doubt that the clinician needs assistance and that he himself is usually not in a position to carry out certain pathologic and biochemic examinations which would aid him much in the diagnosis and the treatment of the disease. It appears, however, very doubtful to us whether it is desirable that the professor of pathology and biochemistry or the director of the laboratory, essentially intended for the furtherance of scientific knowledge and research in medicine, should undertake such work. He would be obliged to scatter his efforts and could not accomplish his essential tasks. During a relatively long period in the history of pathology the careful study of material obtained at autopsies was the principal field for research in pathology. These investigations laid the foundation for our knowledge of pathologic anatomy and histology. At that time the cooperation between clinician and pathologist at the post-mortem table was equally in the interest of clinical medicine and pathology.

Although considerable work undoubtedly remains to be done in this direction, still the principal structure of this part of pathology has been erected, and new fields of research that have already given important results and promise still greater results have since been opened, and now claim the best efforts of the investigator Under these conditions it seems, in general, preferable that this part of pathologic and biochemic work, which is in the main subsidiary to the practical needs of the clinician, should be entrusted to special workers There is no doubt that here, also, results of interest to science may be obtained, so to say, as a by-product, but this work is not primarily undertaken from this point of view and such results cannot be counted on as certain Whether these workers in what, in a wider sense, we might call clinical pathology ought to be attached to the department of pathology or of clinical medicine depends on the special character of the different institutions As a general rule, the clinical pathologist ought to be connected with that department which can use, to the greatest advantage in science, the data obtained through his efforts

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[2] It may perhaps be of interest to mention that in a course in experimental pathology which I prepared and gave in 1904 and in the following years I embodied much work general pathology. I would also like to refer in address of Dr. Yandell Henderson, the chai the Los Angeles meeting of the A. M. A. p. 185

While we thus find that the demand for scientific assistance on the part of the practitioner is justified and that a way can be found to satisfy his needs without impairing the work of the investigator, I believe that the solution for the second difficulty, expressed in the criticism that the work of the investigator is too theoretic, must be looked for in another direction We all desire results that diminish the suffering of mankind, but they are not best obtained by decrying the efforts of the worker who follows apparently purely theoretic lines of research I believe that the urgent demand for practical results in scientific research ought to be counteracted through a brief course on the development of human knowledge, which each medical student should receive at some time early in his studies Perhaps a few lectures given on that subject in connection with the course on biology or physics, in the first or second year of college, or perhaps a few introductory lectures given with the course in chemistry or physiology in the medical school, and a few additional lectures on the modern history of medical science given in the third or fourth year might produce the desired effect Such lectures might create an appreciation of the fact that although progress in science is continuous and connected, yet the making of a valuable discovery depends to a great extent on a certain lability of thought in the mind of the investigator

In definite instances the element of happy accident has of course, to be taken for granted Individual peculiarities on the part of the investigator in the selection of problems and in the way of attacking the problem must not only be tolerated on the part of the practitioner, but must even be encouraged History has shown that the development of science is continuous and connected, but it has also shown that this development does not, usually take place in such a direct and straight line that we are in a position to foretell its course Much depends on the personality of the investigator It is only the highest type of investigator who may appreciate in which direction the solution of a problem may be expected, and he, also, frequently depends on the aid of favorable constellations in the development of his work Dictation from the outside will lead to the use of stereotyped methods which have given some results in the past, but may not be adapted to new problems Frequent criticism on the part of the outsider is liable to dampen the enthusiasm which is a valuable asset in the work of the investigator

It has been repeatedly pointed out in the past how the most far-reaching results, also from a practical point of view, were obtained through often long and tedious work of a very theoretic character, apparently without connection with medical practice We might even assert that the practical problems given by the practitioner are frequently of such a specialistic character, restricted in their general significance, that with some preparation, the practitioner might best be suited to undertake such investigations himself The more far-reaching results which benefit wider circles are usually the outcome of biologic, physiologic or chemical investigation originally undertaken without a direct view for practical application We may assert that in the natural course of its development a branch of science may be treated purely from a theoretic point of view In the course of this theoretic development, the point will be reached at which the possibility of practical application will become apparent Not only the general research laboratories of the medical department, but also the research institutions devoted to the pursuits of special problems must shape their policy in accordance with these facts and encourage investigation on the broadest possible basis; otherwise they may undermine their most valuable source of intellectual supply

But we must go even farther and state that the obtaining of results, practical in the sense in which this term is usually applied, is not the only aim of investigation It is well understood that physics chemistry and biology are not cultivated merely from the point of view of the discovery of methods of use in the daily life They all serve besides a philosophic purpose, they give us an understanding of the universe and of man's rôle in the universe What holds good of zoology and botany holds good also of physiologic and pathologic study. They are at least as important for our philosophic understanding of life as botany and zoology And this applies not only to physiology and pathology in general, but even to special branches in these sciences They all have to serve a double purpose, namely to contribute to the solution of a practical problem and to our understanding of life in all its physical intellectual and moral aspects There does not need to be any dispute as to how far one aspect of investigation ought to be favored at the expense of the other Both sides of investigation go in reality hand in hand and, as we pointed out, the road of purely theoretic research will ultimately lead also, to the most far-reaching practical results Theoretic investigations in physiology and pathology are therefore necessary as instruments with which to obtain practical results which can be directly applied in the treatment of disease Theoretic investigations are also necessary, as we pointed out, in order to satisfy our philosophic needs If we oppose here practical and philosophic aims, we must recognize that such a division does not altogether do justice to the real state of things, for investigations in physiology and pathology are of a practical character in proportion as they subserve philosophic needs

And it is the practitioner in medicine, daily confronted with the experience of the greatest physical and mental suffering in patients asking for his help, who will appreciate the assistance which a philosophic study of the sciences will give him, it will sustain him in his daily difficult task, increase his sympathy with human suffering and add to his power to give consolation and strength to his patients by raising their thoughts to higher spheres The investigator, in his turn also, depends to some extent on the moral support of the general prac titioner who is not directly connected, with a medical teaching or research institution His task will be made more easy and more fruitful if he finds a sympathetic understanding on the part of the practitioner Furthermore the practitioner might come into closer touch with the work of the investigator adopting the latter's attitude of mind in those cases in which he is confronted with new situations and new problems in his practice and at the same time he might add to his usefulness and to the dignity of his position by becoming a source of intellectual and moral help to the community by fortifying himself in his difficult task through the philosophic study of science and by communicating the spirit of science to the circle of those who are under his care The realization of this conception will effect a very close union between investigator and practitioner The physician can be and ought to be thus a bearer of the message that science has for mankind

Barnard Free Skin and Cancer Hospital

EXPERIMENTAL DEVASCULARIZATION OF SEGMENTS OF INTESTINE WITH AND WITHOUT MECHANICAL OBSTRUCTION *

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AND
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Any experimental work dealing with intestinal obstruction as one of its chief features requires a preliminary statement of the present status of obstruction The exact cause of death in obstruction of the bowel has never been definitely determined The three theories advanced are (1) the nervous theory, which holds that the nervous system is affected in somewhat the same way as in shock, (2) the bacterial theory which holds that death is due to the bacteria contained in the obstructed intestine, (3) the toxemia theory, which holds that death in obstruction is due to some perversion of intestinal metabolism Metabolic toxins may be formed in the epithelium of the intestine, or the mucosa may permit the direct absorption of peptones and products from the intestine that are normally changed by the epithelium before being discharged into the circulation The nervous theory has few advocates, but the bacterial theory and the theory of toxemia have many champions

RECENT EXPERIMENTAL WORK

It is not our purpose to review the literature on this subject, which can be found in a number of recent articles, particularly those by Hartwell and Hoguet,[1] Murphy and Vincent,[2] and J W Draper,[3] to say nothing of the German and French work, which in the last few years has been quite extensive We desire, however, to call attention to some of the deductions made from recent experimental work It does not seem probable that the chief cause of death in intestinal obstruction is a lesion of the intestinal mucosa as Hartwell and Hoguet believe, though this may be a contributing cause If a lesion of the mucosa is chiefly responsible, it would be difficult to explain why the symptoms of ileus do not develop after any ulceration of the bowel, or after any wound in which a raw surface is necessarily left in the mucosa, as in intestinal resection It has been pointed out by Roger and Garnier and by others that the normal products of intestinal digestion, particularly the peptones, are poisonous if directly injected into the circulation The intestinal mucosa exerts some chemical change on this material during the process of absorption, which not only renders it non-toxic, but converts it into nutrition for the body cells Experiments, then which depend on the fact that material taken from a strangulated loop of intestine and injected into an animal produces illness and death, do not by any means prove that this material is peculiar to the strangulated intestine The normal products from the normal intestinal tract when injected will also produce marked toxic symptoms and death

It is generally recognized that a high intestinal obstruction, within 12 inches of the pylorus, is more rapidly fatal than an obstruction low down in the ileum This is classed by Draper Roger and Garnier and others as proof of the fact that some vital secretion of the duodenum and no bacterial product is the toxic substance in obstruction, for it is well known that the upper part of the intestinal tract contains fewer bacteria than the lower part of the ileum The experiments of Murphy and Vincent emphasized this difference in bacteria in the duodenum and the ileum as they found that when material from normal unobstructed bowel of cats was injected within the peritoneal cavity, necropsy revealed a peritonitis which corresponded with the level of the intestine from which the material was taken, that is, the most marked peritonitis was found when the contents of the ileum were used and the mildest when the contents of the duodenum were injected This does not sustain the theory that the toxic substance is due solely to bacteria, for a low obstruction with a large amount of bacteria should be more rapidly fatal than a high obstruction with a small amount of bacteria

The fact that the toxic material of obstruction can be reproduced in a section of removed intestine, as was done by Murphy and Vincent, does not exclude the possibility of this material being formed by the cells of the intestinal mucosa In pathologic conditions of the thyroid gland, as hyperthyroidism, the toxic products may be prepared from the gland after it has been removed and when injected reproduce to a large extent the symptoms of hyperthyroidism In like manner, a toxic substance might be formed in the intestinal mucosa and extracted after the bowel had been removed from the body or might be produced by body heat and devascularization, which would be the condition of the intestinal loop placed in an incubator The careful work of Murphy and Vincent has thrown much light on obstruction but the rapid death and marked symptoms which they report from intraperitoneal injection of the unsterilized material from an obstructed intestinal loop may be due to septic peritonitis It is at least conceivable that the peculiar toxic product of acute ileus may be formed from the epithelium of the intestinal mucosa of the obstructed loop under the stimulus of a perverted circulation, of an excessive amount of bacteria, or of both If toxic products sometimes occur in the thyroid under stimulation of excessive nervous impulses, we can not dismiss the possibility of some stimulation of the mucosa of the intestine by excessive bacterial toxins or altered circulation causing toxic products here

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* Read in the Section on Pathology and Physiology of the American Medical Association at the Sixty Third Annual Session held at Atlantic City, June 1912

[1] Hartwell J A and Hoguet J P Experimental Study of High Intestinal Obstruction Am Jour Med Sc March 1912

[2] Murphy F T and Vincent B Experimental Study of Cause of Death in Acute Intestinal Obstruction Boston Med and Surg Jour Nov 2 1911

[3] Draper J W Experimental Intestinal Obstruction THE JOURNAL A M A. Oct 21, 1911 p 1338

AUTHORS' EXPERIMENTS

Our experiments were originally undertaken with the idea of determining, if possible, the difference in the effect on an animal when devascularized segments of intestine were obstructed at both ends and when such segments were unobstructed and their products allowed to flow freely into the normal bowel As the work proceeded other problems arose, such as the ultimate fate of the devascularized segment, the cause of death in obstruction, and the absorption of the toxic material While no attempt has been made to cover such large subjects as the last two, we have noted everything we could in our experiments that might have any bearing on these features of intestinal obstruction

TABLE 1—SEPARATION OF MESENTERY WITH TAPES ON DEVASCULARIZED INTESTINE

No of Dog	Number of Inches of Intestine Devascularized and Operative Notes	Postoperative Notes	Length of Life After Operation	Post Mortem Notes
1	Eight inches No omentum wrapped around devascularized segment.	Dog looked sick twenty four hours after operation, abdomen distended respiration rapid	Died after 36 hours	Large amount of bloody fluid bowel proximal to tapes greatly distended omentum adherent to abd incision but not to intestine segment of bowel black jelly like with large perforation near proximal tape
2	Two inches Omentum wrapped around segment of bowel and fastened with silk sutures	Dog apparently well for four days, for three days quite sick then better for three days when he became worse	Died after 14 days	No free fluid but coating of lymph on peritoneum, bowel proximal to tape greatly distended distal firmly contracted segment of bowel thickened and contracted and surrounded by densely adherent omentum
4	Two inches Operation same as in Dog 2	Dog appeared very sick from time of operation	Died after 48 hours.	Large amount of free bloody fluid marked distention of proximal bowel contraction of distal omentum adherent to abd wall but not to bowel segment black jelly like large perforation
5	Two inches Operation same as in Dog 2	Dog did well for three days then appeared very sick for one day again seemed better until two days before death	Died after 13 days.	No free fluid no distention of intestine either above or below tapes omentum firmly adherent to segment which showed but little change The coats of this segment are somewhat discolored and swollen but sharply outlined Evidently the omentum has preserved the nutrition of the devascularized intestine
8	Two inches Operation same as in Dog 2	Dog appeared quite sick from time of operation	Died after 3 days.	Small amount free bloody fluid proximal bowel distended omentum adherent to segment of bowel which was dark, reddish and thickened

We have done ten experiments, all of them on dogs As far as possible the conditions under which each experiment was performed were similar The dogs had no food for two days before being operated on, though they had water freely All had water freely but no food after operation except two, Dog 9 and Dog 10, and to them food was also given freely for ten days before they were killed The experiments were done under full ether anesthesia and with the usual aseptic precautions Every effort was made to reduce the amount of pain and suffering to the minimum In no instance was there any evidence of inflammation in the abdominal incision, the wound always healing by first intention In all of these experiments the mesentery was cut after doubly ligating it in sections at the border of the intestine In five experiments tapes were applied at each end of the devascularized segment to obstruct, but not injure, the bowel and so cut off its lumen from the healthy intestine (Table 1) In all experiments the last part of the ileum was used In one instance, Dog 1, there was no effort to protect the intestine with omentum Here the mesentery was separated for a length of 8 inches The dog was quite sick from the time of operation and died within thirty-six hours Necropsy showed that the affected intestine had become gangrenous and was mostly converted into a jelly-like mass which had ruptured and extruded its contents into the peritoneal cavity In Dog 4 the experiment was similar to that in Dog 1 except that only 2 inches of the intestine were devascularized and the omentum was wrapped around this segment and fastened in position with sutures The omentum also covered the tapes and extended over on the intestine on each side about 1 inch This dog also was sick soon after operation and died within forty-eight hours The intestine was converted into a jelly-like mass and had ruptured The omentum was not adherent but was held in position by sutures In the remaining three experiments in which tapes were used, 2 inches of the intestine were separated from the mesentery and the procedure was the same as in the experiment just described on Dog 4 In these three experiments Dog 2 lived fourteen days, the other two died, one, Dog 5, after thirteen days and the other, Dog 8, after three days

Of the five that had no tapes one, Dog 3, died twenty-seven days after operation Necropsy showed that this dog had obstruction just above the devascularized segment, where a large hair-ball had accumulated The obstruction was caused by adhesions and volvulus There was no perforation In this dog and in two others of this series of five about 2 inches of intestine were devascularized according to the method mentioned above Of these two one, Dog 7, was in excellent condition when killed and had apparently lost but little weight The other, Dog 6 was considerably emaciated Necropsy showed the intestines in Dog 7 in good condition The nutrition of the segment was well carried on by the very adherent omentum In Dog 6, killed twenty-two days after operation, necropsy showed no perforation, but the intestine was quite thin and gave evidence of malnutrition In none of these three dogs was any food given after operation, so in order to test the nutrition of the bowel more thoroughly two other dogs were operated on by similar technic, except that in Dog 9, 4½ inches, and in Dog 10, 4 inches were devascularized instead of 2 inches The omentum was wrapped round as in the other cases These dogs received food, Dog 10 at the end of five days after operation, and Dog 9 at the end of eight days after operation Each was then given food and water freely for ten days In neither instance was there any indication whatever of obstruction and the dogs were gaining weight quite rapidly when killed

In considering the points brought out by these experiments they may be divided into (1) the nutrition of the devascularized segment (2) the cause of death, (3) the absorption of the toxic products (4) the practical deductions that may be applicable to clinical surgery

NUTRITION OF DEVASCULARIZED SEGMENT

Of the five dogs in which the segment of intestine was devascularized and tapes applied two died within forty-eight hours. Of those that lived, one died after three days, one after thirteen days and one after fourteen days. Necropsy in Dog 2 that lived longest, showed that the intestine between the tapes was densely adherent to the omentum and had become thickened and contracted. Its coats were distinct and apparently well nourished though slightly darker in color than normal. There was some distention of the intestine proximal to the upper tape. In Dog 8, which died after three days, the omentum was found closely adherent to the devascularized intestine. The intestine between the two tapes was very thick, dark red in color, somewhat distended and contained a brown foul-smelling material. In Dog 5, which lived thirteen days, there was but little change in the segment of bowel, though the only nutrition possible must have come from the adherent omentum. In the dogs in which no tapes were applied the results were interesting. As has been mentioned above, in three of these five 2 inches of intestine were devascularized and in two 4 and 4½ inches were devascularized. In the last two food was given freely for the last ten days without any deleterious effect. All of these five dogs lived and were in good condition when they were killed, except Dog 3 which died from obstruction. The intestines of the others, including those that had food and in which 4 inches or more were devascularized, were in excellent condition and showed little evidence of lack of nutrition.

If the omentum becomes closely adherent it appears to be capable in many instances of nourishing the segment of bowel. If this does not happen the bowel becomes necrotic and perforates and the dog dies within a few hours of septic peritonitis. The question of dosage has much to do with these cases, of course, as segments of more than 2 inches would most likely develop such a large amount of toxic material and be such a tax on the nutrition supplied by the omentum that a fatal result would follow more regularly.

THE CAUSE OF DEATH

In the series of Table 1 death is due either to septic peritonitis or to obstruction of the bowel. Septic peritonitis resulted fatally in a few hours. In the devascularized intestine without tapes, that is, without mechanical obstruction, there was no perforation. This may be due to the fact that saprophytic germs form gas and produce marked distention in the segment that is closed, or that the normal intestinal contents sweep away some of the excessive bacteria and toxins of the devascularized segment when the lumen is unobstructed, or again, to the fact that the tapes cut off some nutrition from each end of the segment.

ABSORPTION OF TOXIC PRODUCTS

The dogs with tapes lived a much shorter time than those without tapes. If any peculiar toxic substance was formed in the gangrenous intestine it should apparently be swept on and absorbed if the lumen is unobstructed and should produce more serious symptoms than if the lumen had been closed with the mesentery severed. This, however, is not borne out by these experiments and the result seems to correspond with experiments of Murphy and Vincent, which show that this toxic material is not absorbed from the healthy mucosa. In our own experiments no attempt was made partially to obstruct the circulation of a loop of bowel, but in every instance the total circulation was cut off by double ligatures of the mesentery near the intestinal border. Consequently we have no observations on obstruction to the venous circulation only, which, according to Murphy and Vincent, seems so rapidly fatal.

PRACTICAL DEDUCTIONS

The view usually held that bowel with impaired nutrition can be easily permeated by bacteria has not been borne out in our experiments. In no instance did the dog die under three days except when perforation had occurred and the bacteria and other intestinal contents were thrown in an overwhelming amount into the abdominal cavity. In such cases death took place in a few hours.

A short segment of intestine in a dog, when deprived of its nutrition, if thoroughly protected by omentum, may be nourished through the omentum and maintain its integrity. It has been taught that if even a small portion of intestine becomes detached from its mesentery, *gangrene and a fatal result necessarily follow*. In a dog this does not appear to be true. The occurrence of mechanical obstruction along with gangrene, as would occur in many clinical cases such as strangulated hernia, intussusception and volvulus, adds a great deal to the gravity of the situation. Devascularization of a segment of bowel without obstruction, as when the intestine is severed from its mesentery by a wound, seems much less serious than when there is obstruction. If such a segment is short and is protected by omentum, the condition appears to be compatible with recovery.

TABLE 2—SEPARATION OF MESENTERY WITHOUT TAPES ON DEVASCULARIZED SEGMENT

No. of Dog	Number of Inches of Intestine Devascularized and Operative Notes	Postoperative Notes	Length of Life After Operation	Post Mortem Notes
3	Two inches. Omentum wrapped around segment and sutured intestine	Dog looked sick day after operation recovered and was better until two days before death no food	Died 27 days after operation	Dog much emaciated no free fluid in abdomen segment adherent and in a partial volvulus causing mechanical obstruction segment well nourished intestine above segment dilated and filled with hair for about two inches
6	Two inches Omentum wrapped around segment and sutured intestine	Dog did well never very sick no food	Killed 22 days after operation	Dog much emaciated segment very adherent bowel proximal to segment dilated and contained fecal matter distal bowel contracted but contained fecal matter also segment dilated, very thin but no perforation
7	Two inches. Omentum wrapped around segment and sutured intestine	Dog never appeared sick no food	Killed 21 days after operation	Dog fairly well nourished segment buried in mass of adherent omentum and mesentery segment well nourished no evidence of obstruction
9	Four and a half inches Omentum wrapped around segment and sutured intestine	Dog never very sick, no food for eight days then food given freely for ten days	Killed 18 days after operation	Dog in fair condition omentum adherent to segment otherwise there were few adhesions vessels in adherent omentum much enlarged, nutrition of segment apparently normal no evidence of obstruction
10	Four inches Omentum wrapped around segment and sutured intestine.	Dog never very sick no food for five days then food given freely for ten days	Killed 15 days after operation	Dog in fair condition omentum adherent to segment otherwise very few adhesions, vessels in adherent omentum were enlarged nutrition of segment good no evidence of obstruction

THE INJURIOUS EFFECTS OF THE X-RAY AS A THERAPEUTIC AGENT *

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Physicotherapeutics in recent years has made wonderful progress through the discovery of new agents, and dermatology more than any other branch of medicine has profited thereby It comprehends phototherapy, Finsen, photochromotherapy, radium therapy, high-frequency current, fulguration and roentgenotherapy which deserves a great place in medicine Nobody would or could diminish the value of the great services rendered to medicine by the application of the *x*-rays They are firmly established as a therapeutic factor of the greatest power

It is undeniable that the *x*-rays have certain chemical properties, which in their early applications and even to-day in the hands of inexperienced practitioners resulted injuriously and in some cases really disastrously Nearly every one who had to do with *x*-ray applications suffered some alterations of the skin, hair and nails, which they were compelled to nurse for years, if indeed they have ever healed up This prompted the use of shields to protect the operator and the parts of the body of the patient which were not to be exposed The best means is found in lead plates

PHYSIOLOGIC ACTION

The peculiar chemical action of the rays is a radioactive one and difficult to explain It produces a reaction of the skin, whereby the biochemical properties of the cells are destroyed The therapeutic action is the result of this change induced in the cells If a mouse is exposed to the *x*-ray for a short time, it loses its hair, but if the rays be continued till erythema is produced the animal dies In man after eight or ten doses of 3 x^1 for a short duration an erythema is produced, which lasts for some time, disappears and leaves a brown pigmented discoloration An early reaction may occur after 1½ to 3 *x* in two or three days It is not due to a peculiar individual susceptibility or to a more delicate condition of the vascular system of the skin The reaction sooner or later takes place in everybody so exposed, as a result of the necrosis of the epithelial cells of the horny layer, and of the action on the walls of the capillaries and small arterioles of the skin That some patients have idiosyncrasy against the *x*-ray is erroneous

The first alterations are shown in the hair, as Williams and Bogrow[2] have first described After a few applications of the rays to parts covered with hair, the bulb of the hair changes, assuming the shape of a brown pigmented cone When applications are continued the hair falls off, the bulb and the pigment disappear, some hairs are broken some are in the way of regeneration The alopecia from *x*-ray resembles that due to alopecia areata Yet no parasiticide action in *x*-rays has been proved This action on the hair has been utilized for epilation purpose in cases of extended hypertrichosis, and in the treatment of tinea favosa and trichophytina, and in sycosis barbæ, when the removal of the hair is necessary to obtain the recovery Yet it carries with it the danger of radiodermatitis and of permanent alopecia In some hospitals in Europe, where large numbers of boys and girls have to be treated for favus capillitii the *x*-rays are used quite extensively with great benefit, but always with great fear and once in a while with permanent loss of the hair The same necrotizing effect which causes radiodermatitis on the normal skin affects efficiently epithelial neoplasms of the skin, causing destruction of their cells and consequently their reabsorption and disappearance This beneficial action is displayed in all cases of epithelioma of a vegetating nature, and also in the ulcerated sort, but not in those cases in which the edges are very hard and callous In the latter cases with the *x*-ray treatment an improvement is obtained, but nothing more On persisting with the rays under such conditions, the disease takes on an invading character and gangrene sets in with more rapid destruction In these cases it is best to stop the rays and apply radium

The same results have been noticed in the treatment of lupus, which is beneficially influenced by the rays, the ulcerations heal up easily, but in order to remove the hard deep tubercles the Finsen light must be resorted to, or else applications of radium Roentgenotherapy is also applied in cases of deeply seated tumors, not with the idea of obtaining a cure, but in order to check somewhat their course and diminish the pains In some cases it is used as a preparatory treatment for a surgical operation, at other times it is used after the operation with the intention to destroy all infectious foci which may have escaped the surgical knife It has been advised in stubborn cases of eczema and psoriasis It has been used in chronic inflammatory infiltrations of the joints, in elephantiasis, in enlargement of the glands It has been used with benefit in tuberculous lesions, not only of the skin, but also of the deeply seated tissues, especially in children In granuloma fungoides, leproma and rhinoscleroma it has been found a valuable therapeutic agent, and recently Pellizzari[3] has found it useful in the treatment of the granulomas of the nose and palate caused by boubas This treatment has been found in those diseases the only means, if not to effect a cure, at least to diminish the sufferings and prolong life

In the *x*-ray there is a radio-active action capable of causing reaction which destroys the life of the pathologic cells and, if continued, also of the normal cells This is what produces the injurious effects, which we know under the name of Roentgen dermatitis, or commonly the *x*-ray burn This dermatitis must be divided into three stages

The first stage somewhat resembles sunburn—a diffused redness with enlargement of the blood-vessels accompanied by itching and a burning sensation In the face the affection may invade the lips and the mucous membrane of the cheeks and of the oral cavity simulating a stomatitis The most prominent injurious effect on the skin is the enlargement of the blood-vessels It seems that the rays have a direct action on the walls of the capillaries and of the small arteries, diminishing their elasticity When the dermatitis is repeated or has lasted for some time, the blood-vessels remain so enlarged The radiodermatitis may assume a form of mild chronic reaction lasting for a long time This may cause an atrophic condition of the skin which with the dilatation of the blood-vessels causes a hideous and irreparable injury to the skin One of the many cases of the kind I have seen was in a young lady, who had had her face treated for a stubborn eczema with the *x*-ray, and the whole chest was affected with chronic radiodermatitis, causing diffused atrophy with dilated blood vessels of the skin.

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* Read in the Section on Dermatology of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912

[1] X ray units

[2] Bogrow Ueber einige Veranderungen der Haare nach Roentgenization Russ Ztschr f Haut u Ven Krankh xvii, abstr in Monatsh. f. prakt Dermat., 1909 xlix, 68

[3] Pellizzari C., Inst Fototerapico di Firenze 1912

Indeed in some cases of eczema treated with the x-ray the eruption was not improved and some parts of the skin attained a high degree of hypersensitiveness while other parts began to show signs of third degree reaction. In a general way an ordinary first degree radiodermatitis lasts from three to twenty-one days leaving some pigmentation of the affected skin.

When the x-rays have been applied for a longer time and persistently a second degree burn may occur, with the formation of blisters on a brownish red and badly swollen skin. In one patient who had been treated for an eczema of the hand after ten exposures to the rays prolonged for ten minutes a violent dermatitis developed with unbearable pain and formation of deep blisters filled with brownish bloody serum. From this condition although painful and more serious the patient may recover in from three to eight weeks time.

The third degree x-ray burn is found when the ulcerative process begins. It takes a long time to heal and at times is very difficult to be brought to recovery. Every one of us has seen such unfortunate cases and some of us have even suffered excruciating tortures ourselves. To day fortunately thanks to the better apparatus and to the better care of the operators these unfortunate cases are greatly diminishing in number. I saw one case of x-ray ulcer on the hypogastric region produced by x-ray exposure for the purpose of taking the radiograph of a stone in the bladder. Another x-ray ulcer I saw on the back of a patient's neck (he had been treated for furuncles), and another in a girl on the internal malleolar region.

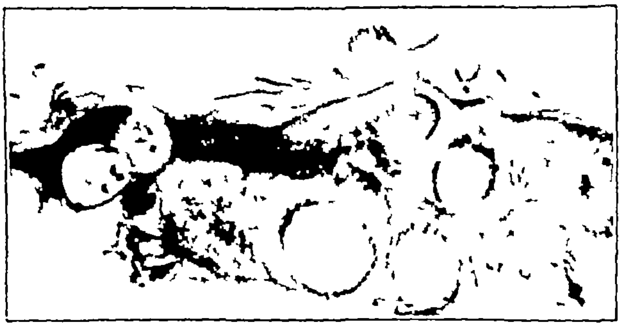

Fig. 1.—Low power view of epitheliomatous pearls (made out of epithelial cells) formed in small nodules vegetating on a chronic x-ray dermatitis. The photographs were made by Dr. Goosmann.

Cases of this kind are related in great numbers in the medical journals, but it would be a long and tedious task to go over such an extensive literature. I shall refer to two cases in my own practice one of lupus erythematodes, and the other of lupus vulgaris, which were rayed for a long time with resulting x-ray dermatitis which to day is more hideous and deforming than the disease itself.

Case 1.—A young Russian woman aged 25, in good health was affected with lupus erythematodes of the nose and cheeks in a discoid form. She was first treated in Europe before emigrating, then having another relapse she was treated in the United States. The treatment has consisted mostly in the application of the x-ray. She had a great many exposures to the rays, in round numbers about forty or fifty. When she came to my office, the lupus erythematodes was still bad and was complicated with the atrophic condition of the skin together with the telangiectasia characteristic of the chronic x-ray dermatitis. The skin was reduced to a dry parchment like membrane thin white scar like hard, brilliant, in some places darkly pigmented and studded with a net of enlarged blood vessels. The cartilages of the nose seemed to be bare, as if they had been eroded and were destroyed at the edge of the nostrils causing deformity in the shape of the nose. On the atrophic skin very small nodules had formed, brownish red rising out from the depths of the tissues and covered with dry scaly crusts. Some of these nodules had been excised and prepared for biopsy. Under the microscope they proved to be small epitheliomas (Figs. 1 to 4). Roentgen rays in this case did not give satisfactory results, and the injurious effects if they do not exceed those of the disease, are equal to them.

Case 2.—Mrs. K. W., aged 40, German by birth, has been affected with lupus vulgaris of the left side of the face for twenty years. In these last years she was advised to have the x-ray applied. This was done often and persistently for ten to fifteen minutes twice a week. In the beginning it seemed that she was benefited but on persisting in the use of the rays, a deep necrotic radiodermatitis developed. The process spread to the whole left side of the face the auricula and the upper portion of the neck, producing several deep ulcers. At present the skin is very red studded with red enlarged blood vessels, in some places it is atrophic and shows cicatricial spots. The deep cicatrix has drawn the mouth so much that she can scarcely move her lips. In the center of the affection there remains a crateriform vegetating ulcer of the size of a silver dollar elevated on the normal skin, which shows the character of a vegetating carcinoma.

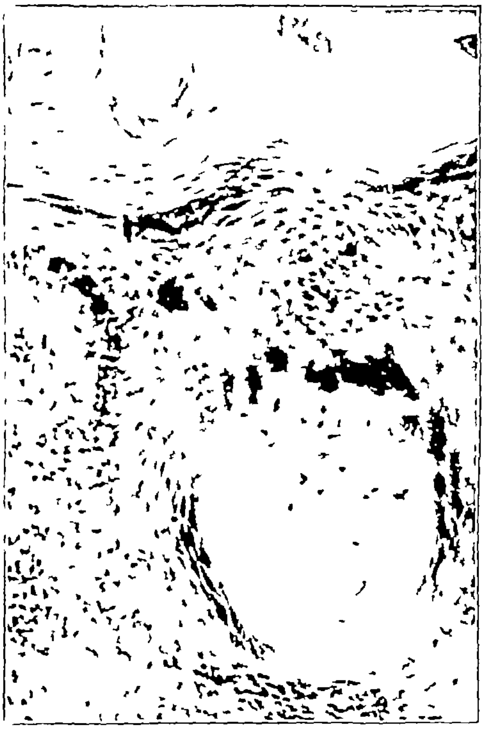

Fig. 2.—Pearl connected with surface epithelium.

The occurrence of malignant tumors after the application of the x-ray was noted by Kanitz,[4] Rowntree,[5] Dieffenbach[6] and many others. Indeed, the nodules formed on the hands as a consequence of the chronic x-ray dermatitis under the microscope proved to be typical carcinomas of the squamous kind. The production of carcinomatous growths in consequence of the x-ray is

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[4] Kanitz H.: Budapesti orv. ujsag, 1909, No. 29; abstr. in Monatsh. f. prakt. Dermat., II, No. 3.

[5] Rowntree, C. W.: Lancet, London, 1909.

[6] Dieffenbach, W. H.: Med. Rec., New York, March 27, 1909.

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[illegible] Medical College

used by Dieffenbach as an argument that carcinoma is not infectious, or of parasitic origin. It seems that new growths are formed where the normal formation of cells is impaired, either by trauma or by pressure, chronic inflammation or by constant irritation. These conditions influence the life of the cells to a constant proliferation and to the production of cells of their own kind. In my specimens pearls can be seen, formed by large scaly epithelial cells, which in this case act like a foreign body, and the other cells are involving them in order to protect the other tissues. The trophic nerves have also much to do in the healing of these burns, so much so that when the irritation is removed the restored circulation may change the cells into the normal condition, but when the vasomotor nerves have no more control of the circulation, necrosis continues and proliferation of cells induces carcinomatous growths.

The application of the *x*-ray has caused hyperkeratosis of the finger-nails. Wehrsig[7] reported his own case. In a surgical station he had charge of the *x*-ray department. After two months his hands showed an eczematous condition like that following the use of corrosive sublimate. This improved, but the finger-nails lost their glossiness, began to break and became thick and bulky; when the use of the rays was stopped the affection improved somewhat but very slowly.

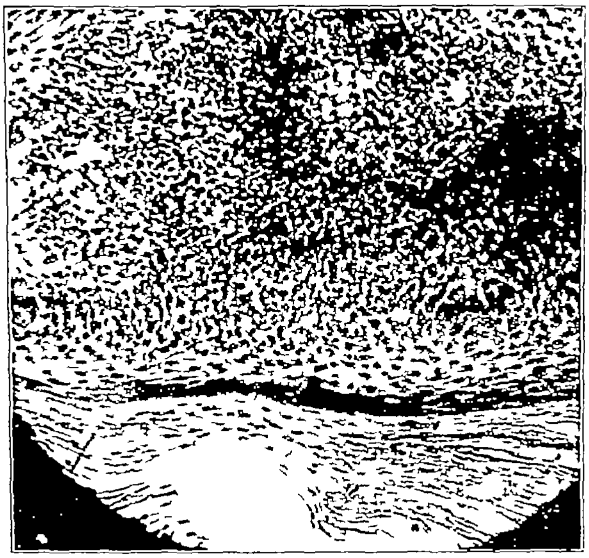

Fig. 3.—Infiltration of an epitheliomatous growth on an *x*-ray dermatitis.

Another dangerous consequence of the *x*-ray in tumors is the production of metastasis endangering the life of the patients. Councilman and Magrath[8] reported two cases of xeroderma pigmentosum in two sisters, respectively 8 and 10 years old, who were treated with *x*-ray and both died. The autopsy showed several lesions from *x*-ray and metastasis of generalized carcinomatosis.

Kanitz[9] reported a case of sarcoma in a lady 65 years old in the left scapular region. After some strong *x*-ray applications a local reaction followed with necrosis and gangrene of the tissues of the tumor associated with severe general toxic symptoms. Surrounding the first sarcoma, innumerous nodules of sarcoma type had formed. In my own practice an engineer, who had a carcinoma of the right arm near the elbow-joint, was treated with the *x*-rays and a deep phlegmonous inflammation resulted in gangrene of the whole mass. The patient had high fever and symptoms of general toxemia. The amputation of the arm was necessary to save the patient's life, but eight months thereafter he died with secondary cancer of the subaxillary glands.

From the above considerations we may conclude that roentgenotherapy is accompanied with more or less danger. This statement is not made for the purpose of discouraging anybody from the use of so powerful a physical remedy, which can bring about a great deal of benefit in a great many diseases, but only to call the attention to the great care which has to be used in giving the *x*-ray. In some cases the patients have been trusted to inexperienced office attendants, and the physician has noticed the danger only when dermatitis had already set in. When with the *x*-ray no improvement or no progress is obtained in the treatment of a disease, it is better to stop and change to some other method of treatment, otherwise danger is lurking and will soon be looming up.

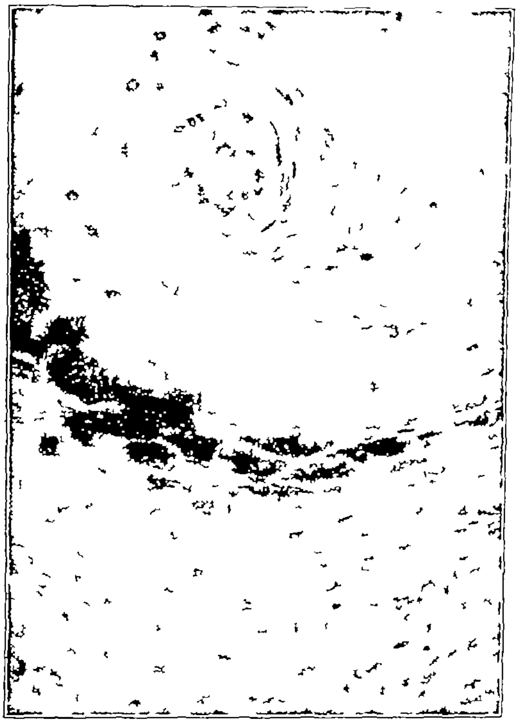

Fig. 4.—High power view of epitheliomatous pearl; different types of epithelial cells.

When a radiodermatitis has begun, if it is of first degree, a bathing with 2 per cent. solution of aluminum subacetate or of sodium bicarbonate will diminish the itching and the burning sensation and the skin in a short time will return to the normal condition. If the burn is of second degree with formation of blisters, the continuous bathing with soothing solutions, the opening of the blisters and the treatment as for any other burn will be sufficient. When ulceration sets in recovery is difficult. The best way for a speedy recovery is the excision of the whole ulcerated surface, and consequent surgical treatment.

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[7] Wehrsig: München. med. Wchnschr., 1909, No. 32; abstr. in Monatsh. f. prakt. Dermat., l, No. 7, p. 223.

[8] Councilman and Magrath: Fifth Report of the Cancer Commission of Harvard University; abstr. in Monatsh. f. prakt. Dermat., li, No. 6, p. _66.

[9] Kanitz, H.: Schwere Toxämie und Metastasen bildung nach Roentgen Behandlung eines Haut Sarkom, Med. Klin., 1909, No. 14; abstr. in Monatsh. f. Derm. u. Syph., 1910, l, _71.

ABSTRACT OF DISCUSSION

DR WILLIAM ALLEN PUSEY Chicago It is of course a truism that you can produce most disastrous effects with *x* rays or with any other agent similarly powerful by its overactive use. On the other hand my experience has convinced me that you can use *x* rays with as much freedom from danger as you can use any other powerful agent. All of the effects that Dr Ravogli mentioned I think I have seen and yet in spite of that experience I still feel that *x* rays constitute probably the most useful single means of treatment in the service of the dermatologist. I have long been impressed with the fact that the chief difficulty about the therapeutic use of *x* rays in skin diseases is that the *x* ray specialists know nothing of dermatology and on the other hand most dermatologists know very little about *x* rays. Both of these facts have helped to bring *x* ray treatment into disrepute. Many dermatologists find *x* rays inefficient because they are afraid of their agent and they fall short in their results because they are uncertain of their technic. Of course I would not advise the careless use of *x* rays but I would urge their usefulness when carefully employed. I have never in my experience observed that *x* rays produced an increased tendency to metastases in malignant growths nor have I ever seen epithelioma stimulated by their use. I am just as willing to undertake to destroy epithelioma in the skin with *x* rays as I would be by the actual cautery or by any powerful chemical or mechanical agent and I have never seen any evidence to substantiate the statement that the danger of metastases is increased by the use of *x* rays. I recently read a paper on the use of *x* rays in selected cases of epithelioma of the lip. This paper gave the histories of thirty six or thirty eight cases of epithelioma of the lower lip which were treated by means of the *x* ray more than three years ago and whose subsequent histories are known in only two instances were there subsequent metastases under the jaw—approximately 5 per cent of failures—which does not nearly approach the percentage of metastases occurring under the jaw after surgical interference. I do not advocate *x* rays as a substitute for operation except in selected cases of epithelioma of the lip and I do not say that the use of *x* rays diminishes the danger of metastases under the jaw but I offer my experience to indicate that they do not increase it.

DR M L RAVITCH Louisville There is no doubt that much of the disrepute into which *x* ray treatment has fallen has been due to its improper application either through carelessness or ignorance. I believe that Dr William S Gottheil was very much opposed to its use a few years ago but that he has since been converted though conservatively to a realization of its value. The physician who uses the *x* ray should also be a good dermatologist. I have employed *x* rays for the past eleven years and can recall only one instance in which I had a bad result. The patient was a woman suffering from tic douloureux. Her skin was unusually thin and four minutes exposure to the *x* ray produced a severe dermatitis but luckily she made a perfect recovery. I think certain individuals possess an idiosyncrasy for the *x* rays just as certain others have for certain drugs and it is the duty of the dermatologist to proceed carefully giving the remedy in small doses until the possibility of such an idiosyncrasy, which I think is due to anaphylaxis is eliminated.

While the *x* ray as a therapeutic measure has been abused, it has in that respect a similar history to tuberculin. Tuberculin was first heralded as a cure for all the ills on earth then it was abandoned and condemned and now it has come into use again and apparently found its proper place. So it is with the *x* ray. Used conservatively and in selected cases it is of great benefit.

DR E S LAIN Oklahoma City During the past two years, two of our leading surgeons in Oklahoma have referred all their cases of epithelioma of the lip to me for *x* ray treatment although it was only a few years ago that they attacked me in our state association for venturing to use the *x* rays in such cases. I regard the *x* ray as one of the most important remedies in the hands of the dermatologist to day. The abuses to which it was subjected are gradually disappearing as all of us who have been working with it know. I have used it for over ten years. In some of my earliest cases I used it on epithelioma of the lip though I now use it in such cases only if the glands are not involved. I have three cases of epithelioma of the lip so treated which have now gone for more than three years without a recurrence. Some years ago, I adopted sole leather to prevent burns but the use of this foul smelling septic material never appealed to me and subsequently I adopted a moistened sterile towel or gauze pad, applying it over the radiated area and since that time I have not had even a secondary dermatitis excepting when intentionally made. I believe that the use of such a moistened towel or gauze pad increases evaporation keeps the skin cooler, and absorbs the actinic rays to which the burns are largely attributed.

DR WILLIAM S GOTTHEIL New York I think we do harm by calling these *x* ray lesions burns. They resemble burns but they do not act like burns and they are not burns. There is no relationship in my mind between a radial dermatitis with its progressive changes and its almost insuperable tendency to persist and an ordinary burn in which after the noxious influences have passed off the tendency is for repair. A radial dermatitis represents a peculiar unknown change in the tissues and cells entirely different from that produced in the traumatism resulting from the application of heat. In New York City we have two classes of radiotherapists one of which Dr MacKee is an example advocates the use of one tremendous dose. In making his application Dr MacKee employs various measuring agents to secure accuracy in his dosage and tries to get the necessary therapeutic effect with one large dose. I do not know of anybody else who has had the courage to adopt this method. Dr Geyser uses a tube that many others think is inefficient because it is too small. This simply illustrates the conflicting opinions that are held on this subject. I think the men who know most about it are the ones who absolutely refuse to use the *x* ray for therapeutic purposes. They are thoroughly afraid of it. There is no doubt that you can get an effect from the *x* ray the same as from any other irritant, and what little therapeutic good I have seen from it, I am inclined to ascribe to that. I have seen cancer get well under a wet dressing and I am convinced that what little good we do get from the use of the *x* rays is simply due to their irritant effect and that we can get in many other ways.

DR JOSEPH ZEISLER Chicago While I continue to consider the *x* rays as one of our mightiest therapeutic weapons at the present time I believe that papers like the one presented by Dr Ravogli are wholesome lessons which ought to be repeated from time to time reminding the profession at large of the injurious effects that may follow their application. I do not believe that there is a man living who has used the *x* rays to any extent and who has not seen their use followed at times by some kind of damage. It is simply impossible to foretell what will happen in some cases after the use of radiotherapy. After subjecting a patient to a series of radiations and losing sight of him he may subsequently return with a distinct atrophy of the skin. I was recently asked by a dermatologist in Omaha whether I considered it safe for him to attempt to remove an extensive growth of beard from the face of a young lady with the *x* rays and I replied by saying Don t monkey with the buzz saw" I have had a few cases of hypertrichosis which I have successfully treated with the *x* rays but this method should never be employed without constant regard for its great dangers.

DR WILLIAM A PUSEY Chicago While I am willing to admit that I have at times produced an *x* ray atrophy, I can recall but a single case in which the patient resented the results of the *x* ray treatment. That was a case of very extended lupus of the face which had existed for many years, and in which, after repeated exposures to the rays a small, painful burn developed which was afterward successfully treated by means of a plastic operation. The *x* rays can be employed with reasonable freedom by one who knows how to use them. Dr Gottheil said he has seen an epithelioma heal under a wet dressing. That may at times happen, but we should not confuse a covered epithelioma with a cured epi thelioma At a meeting about a year ago one of the members said he had never seen a squamous celled epithelioma healed by the *x* rays I recently showed the photograph of a squamous celled epithelioma of the tip of the nose in which there had been no recurrence for over three years I consider such a case one of cured epithelioma—not a healed over epithelioma

Dr C A MacMinn Schenectady N Y After using the *x* rays for six years for skiagraphic and therapeutic work, my experience with them has been very satisfactory We would not, because the abuse of morphin and strychnin would lead to disastrous results, condemn those drugs, and the same is true of the *x* rays In many cases of epithelioma you can remove the lesion with the *x* rays, with a smooth cicatrix or no resulting scar such as you would have even with the best surgical measures This applies particularly to lesions about the eyes and nose I recall one case of lupus in which the lesion involved the side of the nose and the region underneath the eye This man when I first saw him about two years ago had been unsuccessfully treated with ointments and cancer pastes, with radium the ultraviolet rays and skin grafting I gave him three *x* ray treatments a week until a reaction occurred, and then discontinued the treatments until it had subsided After forty exposures the lesions healed completely, leaving a smooth, healthy cicatrix, which remained that way for about eighteen months About a month ago the patient had a slight recurrence on the lower eyelid, which healed after nine exposures I do not know of any other method of treatment in a case of this kind in which I could obtain the results I did lengthening the patient's life and giving him comparative comfort

Dr A Ravogli, Cincinnati In reply to Dr Pusey, I believe that I can recall several unfortunate cases in which the occurrence of metastases was at least hastened by the use of the *x* rays In one case that of a woman with carcinoma of the breast, which was removed I was subsequently requested by the surgeon to apply the *x* rays for a number of recurrent nodules in the region of the scar The result of the *x* ray treatment was apparently good but the patient died suddenly, and at necropsy an enormous reproduction of the cancerous nodules was found in the pleura In another case a man with a diffuse epithelioma on the dorsum of the hand the *x* rays were applied and there rapidly developed a severe inflammatory process of the hand, with a gangrenous condition necessitating amputation death occurred five months later as the result of a metastatic process in the axillary glands

In another case of cancer involving the elbow the use of the *x* rays was followed by an inflammatory process with gangrene and death My paper was presented as a caution against the occurrence of cases like these which have been observed not only by myself but by others The production of an *x* ray dermatitis in certain individuals can scarcely be ascribed to an idiosyncrasy, any more than we could ascribe a sunburn due to exposure to the sun's rays to an idiosyncrasy As to protection against *x* ray burns I have used in the beginning the gutta percha screen and have been very much disappointed with the results Now for a long time I have been using lead plates I have never used applications of a moistened towel or gauze, and will be pleased to give the method a trial I believe that Dr Gottheil is right in his contention that these lesions are not burns but rather dermatites still they are usually referred to as burns After using the *x* rays for a certain length of time without benefit, I believe that a change of treatment such as the application of the cautery or some other method is advisable

Motorcycle X-Ray Machine—A new use for the motorcycle in time of war has been invented by a United States medical officer namely carrying a complete *x* ray outfit, which may be used by physicians for examining injured persons on the battlefield The dynamo spark coils and all necessary apparatus are carried on the rear guard The current is generated by connecting the dynamo to the motorcycle by means of a belt —*Automobile Trade Journal*

OBSERVATIONS ON KERATOSIS FOLLICULARIS

WITH REPORT OF FIVE CASES IN THE SAME FAMILY *

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NEW YORK

The immortal bard asks "What's in a name?" but if any one heeded him, that one certainly was not a dermatologist, as from time immemorial the investigators in this department of medical science have clogged up the literature with names to the point of redundancy It is nevertheless necessary to have a proper cognomen for a definite entity, be that a state or disease, and this title refers to that malady sometimes known as "Darier's disease," "psorospermosis," etc

A full description can be found in all the well-known text-books on dermatology, suffice it to say in this instance that the disease is a keratosis, follicular, as a rule, but not necessarily so

It was first described in 1889, independently, by White of Boston and Darier of Paris The latter author pointed out histologically some small, round, double contoured bodies, which he termed "psorosperms," hence the name "psorospermosis," these he thought to be the etiologic factor This was later disproved by Bowen who found the so-called psorosperms to be degenerated epithelial cells, or cells in some state of transformation So much for the historical sketch, now for the subject

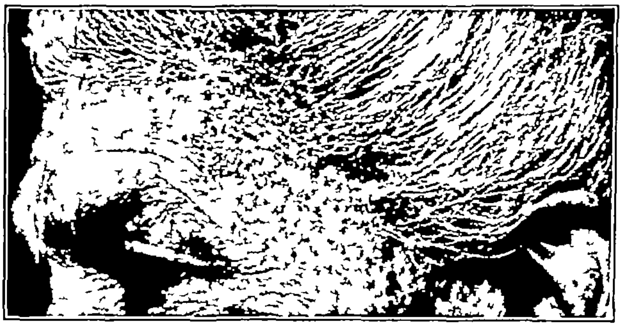

Fig 1 —Case 1 Keratosis follicularis showing lesions on scalp and temples

I have five cases to report, all occurring in the same family, covering three generations, a mother, three children and one grandchild In this group there are three males and two females, the diagnoses have been confirmed by histologic examination except in the case of the grandson, but the lesions in his case are clinically distinct, though the case is a very mild one at this writing To prevent confusion in the literature, it seems best to state that Patient 1, the mother of this family, was a patient on the Bulkley service of the New York Skin and Cancer Hospital about twelve years ago, and that Patient 2, one of the sons, has been under my care in the Fordyce clinic (University and Bellevue) for eighteen months

Case 1 —S A., a widow, aged 63, an American engaged in housework, is not very clear in her memory as to her ancestors The cause of death or whether they ever suffered from a dermatologic complaint is unknown The duration of the condition in her case is about twenty five years She has never had a serious illness, and at present is in excellent health and the steadiest worker in the family She has given birth to three children, all alive and in good health except that all three have keratosis follicularis The main locations in her case were the scalp, forehead, temples and legs She attached no significance to them, but applied to the New York Skin and Cancer Hospital about twelve years ago for a very marked and severe keratosis plantaris She remained an inmate of this institution a great number of months and was eventually relieved of the plantar keratosis by the Roentgen ray, used over a long period At present the disease flourishes on the scalp and temples as can be easily seen in Figure 1, she also has some scattered lesions on the back face and chest They are light brownish in color and vary in size from that of a pinhead to the head of a small match The individual lesions are rounded off on top and are neither flat nor acuminate They are so closely set in some places that they appear to have coalesced and where this has occurred they give the appearance of an aggregation of small papilloma The disease has invaded the auricle and in this location and along the edges of the hair there is some scaling similar to that seen in seborrheic eczema Many of the lesions show a central small pit like depression this can also be seen in Figure 1

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* Read in the Section on Dermatology of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912

* From the Dermatologic Department of the University and Bellevue Hospital Medical College

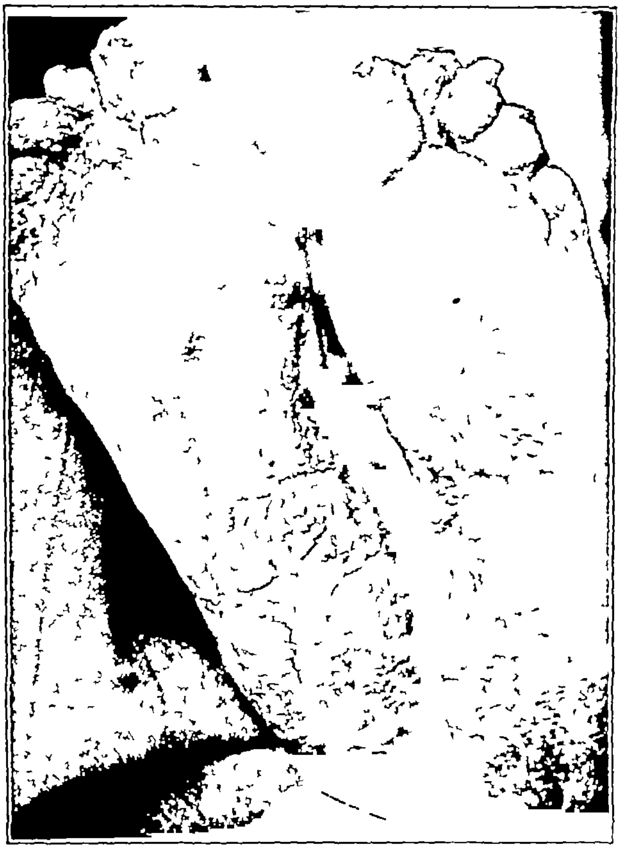

Fig 2—Case 2 Keratosis follicularis showing lesions on soles of both feet

Case 2—S A is an American single aged 36 driver The patient's father is dead and his memory is very deficient in regard to the cause or whether he ever had a skin disease The mother (Patient 1) is alive The patient came to the clinic complaining of a marked keratosis plantaris and although he had noticed the other skin lesions he attached no importance to them He had suffered from some of the diseases of childhood and exhibited a long scar on one leg which is evidently the sequel of a former osteomyelitis Except for this he had enjoyed good health The duration of the condition according to his statement was about four years but it seems reasonable to suppose from the general appearance that it existed longer The locations were the face neck back chest dorsum of hands extensor side of forearms and axillæ The lesions were much more numerous on the face and neck than on other parts They were mainly of sizes varying from that of a millet seed to that of a match head The sides of the face that is the temples jaw and upper lateral half of the side of neck were so thickly studded with lesions that hardly any healthy skin intervened They were as a rule about the same hue as the normal skin but many of the larger ones were pigmented In the main they were discrete but in the locations in which they were most numerous a tendency to coalescence was observed In some regions notably the axillæ, a characteristic pearl like formation was noticed with central dot or depression but in other parts the lesions showed a verrucous appearance Many of them were rather flat but others were rounded on the top and some were acuminate The horny spines frequently seen protruding from the follicles were noticeable only on the back The man was of dark type, but the pigmentation seemed markedly increased There was a moderate amount of scaling on the face along the border of the hair line this may have been due to a pityriasis capitis which was apparent The soles were the seat of a marked keratosis in some places (Fig 2) as much as [illegible] of an inch in thickness They were calloused and fissured and extremely painful when walking

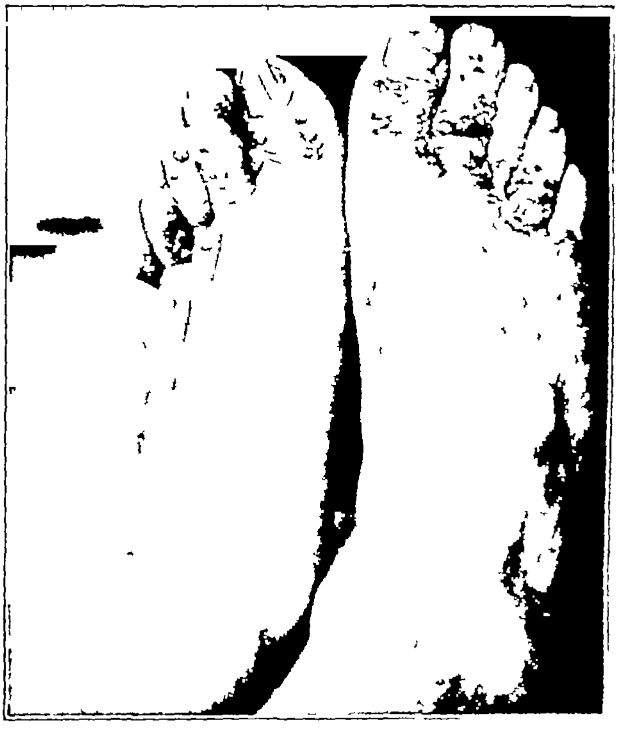

Fig 3—Case 3 Keratosis follicularis showing lesions on toes of both feet

Case 3—The patient a man aged 38 butcher single is a brother of Patient 2 The duration of his disease is five years The locations are the chest back forearm hand [illegible] of feet and toes The lesions are exactly like those of the two previous cases and need no further description They are [illegible] on the chest and back and take on a warty appearance on the forearms The lesions on the toes are macerated [illegible] deal of moisture and give off a [illegible] (Fig 3) There is some [illegible] severe

Case 4—A S woman [illegible] work [illegible] tion The locations are the face, scalp, auricle forehead temple, chest back and forearms (Fig 4) Plantar keratosis is practically absent in this case The duration is rather indefinite but is about eight years

CASE 5—The patient a schoolboy aged 14 is the son of Patient 4 and the grandson of Patient 1 The disease is a very mild one at this time The locations are the feet and dorsal aspect of the hands and wrists The duration is six months, that is his mother first noticed the lesions six months ago The integument shows a slight thickening on the palms and is probably a beginning keratosis The lesions are small, brownish and give the appearance of minute flat warts The body with the exception of the locations mentioned is free

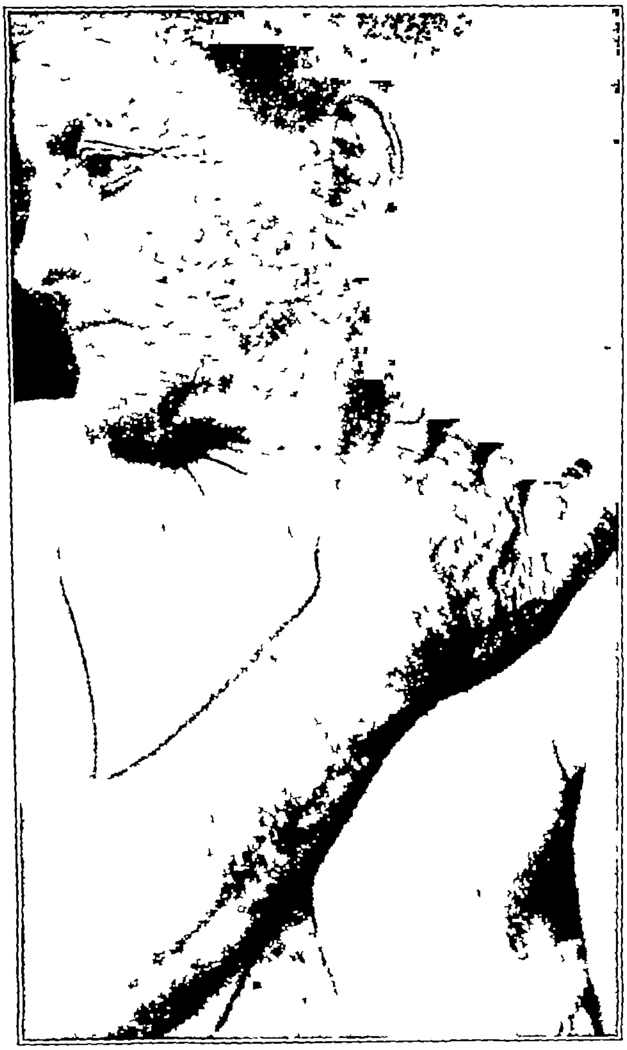

Fig 4—Case 4 Keratosis follicularis showing lesions on face scalp auricle forehead temple chest and forearms

One or two lesions were removed from each patient for microscopic examination With the exception of minor and unimportant individual differences the pathologic picture was practically the same Under the low power the main changes were seen to be in the epidermis A mild degree of hyperkeratosis was present, alternating with areas of parakeratosis

Corresponding to the center of the section the epidermis seemed as though it were folded on itself and long cords of epithelium dipped deeply down into the corium Scattered through the epithelium but especially in the prickle layer were many cellular structures, which by their morphology stood out from normal cells of the epidermis Under the high power these structures were seen to be cells round or oval and larger than the normal epithelial cell (Fig 5) They lay in a narrow, nonstaining, clear zone The protoplasm stained somewhat paler than the surrounding epithelium, but the nucleus was definitely more picnotic and a centrally placed nucleolus was a marked feature of each cell

The entire cell seemed to be surrounded by a thin capsular membrane Immediately underneath the distorted portion of the epidermis was a rather sharply defined infiltration of small round cells, with a few large fixed, connective-tissue cells There were also a few mast cells, but otherwise the corium and adnexa were quite normal in appearance

It can be easily seen that the peculiar cells described in this brief summary of the histology are the so-called psorosperms of Darier As before stated, they are not now supposed to bear any relation to the etiology of the disease, but they are of great diagnostic import, although it must be confessed that the diagnosis is comparatively easy from the clinical standpoint alone One of the features of the greater number of cases heretofore reported is that the malady usually began before the sixteenth year By a glance at the duration in these case reports, it will be observed that the disease began long after the sixteenth year in the first four patients No great reliance can be placed on these patients' statements, however, as they have rather sluggish intellects, and the disease may have been present in a mild form long before it was observed

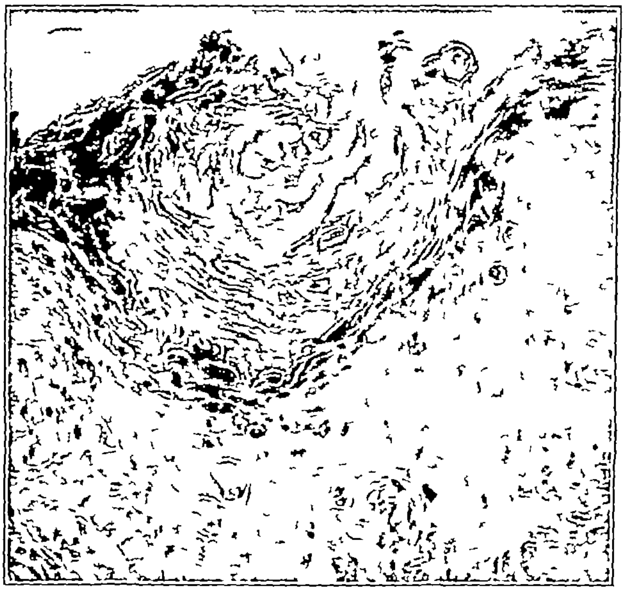

Fig 5—Section of a lesion from patient with keratosis follicularis showing so-called psorosperms

So far as can be learned from the literature there have been three other instances, in which more than one member of a family was affected Boeck reports three cases in the same family White, two cases and Ehrmann, two cases

Both heredity and contagion have been casually spoken of in connection with this disease, whether any scientific efforts have been undertaken to prove either of these theories is unknown to me It does not seem without the range of possibility that one of these suppositions is correct since it is not exceedingly uncommon to find more than one member of a household affected.

With the theory of contagion in mind some animal inoculation experiments were undertaken. With the cutaneous punch two small pieces of integument were excised from the back of one of these patients.

Each section contained three to five small but typical lesions. Under strict aseptic precautions one of these sections, after maceration in normal saline solution was grafted into the skin of the shaved abdomen of a guinea-pig. The other section of tissue was made into an emulsion with normal saline, and injected both subcutaneously and intraperitoneally into a second pig.

The third experiment was made on a rabbit, by vaccination with the contents of several diseased follicles.

They were all negative. The animals are still being watched, but the inoculations were performed six weeks ago and no sign of disease has been observed.

The contents of a number of lesions were forcibly expressed for culture experiments. They were planted on plain agar, blood agar and serum agar, and under aerobic conditions showed nothing but staphylococci but when planted on glucose agar and grown anaerobically for six days two apparently different bacilli could be made out in the smears one a somewhat granular Gram positive that we take to be acne the other a short thick bacillus that we cannot classify. Up to the present time, I have been unable to separate them in pure culture, but the trials are still going on.

Whether this bacillus has anything to do with the disease in question it would, of course, be impossible to say. It is realized fully that nothing positive can be stated without much further work and study which we shall endeavor to do in the near future.

In conclusion, I desire to call attention to the severe and marked keratosis of the soles that is present in a majority of these patients. This symptom although mentioned in some of the text-books, is spoken of only casually. It was present in all the cases herein reported except the young boy. Since the disease is a keratosis this symptom is no doubt directly connected with the pathologic process, at any rate, it is a very frequent concomitant.

My thanks are due to Dr U J Wile for the pathologic examination, and also to Dr Bennett for material assistance with the culture experiments.

39 East Twenty Eighth Street

ABSTRACT OF DISCUSSION

DR J DUNCAN BULKLEY New York I can recall a case of this affection mentioned that we saw at the New York Skin and Cancer Hospital and I also remember that our remedies had little or no effect on it. Subsequently we tried the *x*-ray and to our surprise it had a remarkable effect on the eruption. Within a month the patient was out of bed to which he had been confined for several months by the excessive eruption on the soles rendering them exquisitely painful.

DR RICHARD L SUTTON Kansas City Mo Since taking up dermatologic work I have seen several cases of keratosis follicularis and I can confirm what has been said regarding the lack of results following the use of the various methods of treatment that have been suggested from time to time. Recently I saw a case which had been thoroughly treated with the *x*-rays and by the application of resorcin salicylic acid and similar remedies all without any resulting benefit; the only method that proved even partially successful was the one recommended by Herxheimer (*Dermat Ztschr* 1908 p 45) actual cauterization of the nodule by means of the actual cautery (*Mikrobrenner*) thus substituting cicatricial tissue for diseased structures.

DR W B TRIMBLE New York I have never been able to do much with these cases in the way of treatment. Under the *x*-ray I saw one woman practically cured of the plantar keratosis at the Skin and Cancer Hospital while the same treatment applied to one of her sons had no effect whatever although the *x*-ray treatment was continued for a year. The use of strong salicylates and shaving of the skin produce only temporary benefit.

KERATODERMIE BLENNORRHAGIQUE

WITH REPORT OF A CASE*

FRANK E SIMPSON M D
CHICAGO

Although described by Vidal in 1893 as a unique and well-characterized disease keratosis blennorrhagica has hitherto attracted little attention. So far as I can find the disease is not mentioned in any modern text-book on dermatology except in the recent work of Sequeira in which one case is reported and reference is made to several others. For the history of the following case and the privilege of reporting the skin condition I am greatly indebted to Dr H B Thomas who treated the patient for the associated gonorrheal arthritis.

History—The patient a man aged 28 had had specific urethritis in 1908. Gonococci were demonstrated in smears from the urethra. About six weeks later he suffered from pain in the left hip. Smears from the urethra at this time again showed gonococci. Five weeks later both ankles and the left great toe showed evidences of gonorrheal arthritis. A few weeks later the knees wrists metacarpals vertebrae elbows shoulders and right hip were affected. The patient was bed-ridden and practically unable to move. He brushed his teeth and fed himself with utensils tied to a long stick. About six months from the date of the first joint trouble a generalized rash appeared which was most abundant on the anterior surfaces of the legs the forehead the hands and the fingers. In September 1909 the patient was admitted to St Luke's Hospital Chicago. He came under my observation in January 1910 a few months after the first appearance of the rash.

Examination—The eruption which was widely distributed bilateral and in the main symmetrical consisted of two or several types of efflorescences. The bulk of the eruption was made up of variously sized crust-like lesions of a remarkable appearance. The smallest and evidently the earliest efflorescences of this type were 3 or 4 mm in diameter of round or irregular shape of yellowish color sharply circumscribed and elevated 2 or 3 mm above the general level. There was no inflammatory base to the lesions and when one of them was scraped off a smooth pink slightly moist surface was found underneath. After removal the efflorescences in two or three days reformed themselves.

The largest lesions of the crusted or [illegible] type resembled in appearance the rupial syphilid but an inflammatory base was lacking. Many of these lesions which were composed of stratified epidermal layers were from 1 to [illegible] cm in diameter of conical shape with pointed apex enlarging [illegible] gradually toward the base which was round or oval. [illegible] the older and larger lesions was a brownish [illegible] yellow. There was a tendency especially on the [illegible] of the legs a number of crust-like lesions [illegible] involution taking place in the center [illegible] arrangement of individual lesions [illegible] configuration were formed.

Situated about the [illegible] ankles and on the soles [illegible] type [illegible] seen. Here was a number [illegible] horny [illegible] roughly resembling [illegible] the painful [illegible]

The palms of the hands [illegible] exhibited [illegible] formed a plate like covering There were numerous "scab like" efflorescences, 5 to 10 mm in diameter, on the backs of the fingers, and the nails of both hands were elevated by subungual, gum like, yellow crusts The nails were much thickened, showed a yellowish discoloration and were eventually exfoliated

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* [illegible]

The soles of both feet were affected similarly, but the epidermis covering them was even thicker, forming an irregular, horny carapace, which extended beyond the sole and upward toward the internal malleoli There were, in addition, a number of horny nodules and pustules along the internal borders of the soles anteriorly The toe-nails resembled the nails of the hands, and like them were finally exfoliated

The trunk was the seat of more than a dozen scattered lesions, a centimeter in diameter, of the crust like type These were most numerous over the sternum and around the umbilicus, while the umbilicus itself was reddened and slightly moist

The hairy scalp was affected by numerous horn like crusts, varying in diameter from 1 to 3 cm The forehead and both upper arms were the seat of numerous similar lesions A large rupial like scab was situated at the "vaccination" area on each arm Both forearms were affected by numerous lesions of both types, i e, by horny crusts and pustules On the penis a marked balanitis was noted

The visible mucous membranes were free

The course of all the lesions was a prolonged one If left to themselves they showed little change from day to day, some slowly others more rapidly, increasing in size, but showing little tendency toward spontaneous involution The pustular lesions gradually desiccated and changed to the horn like crusts which have been described

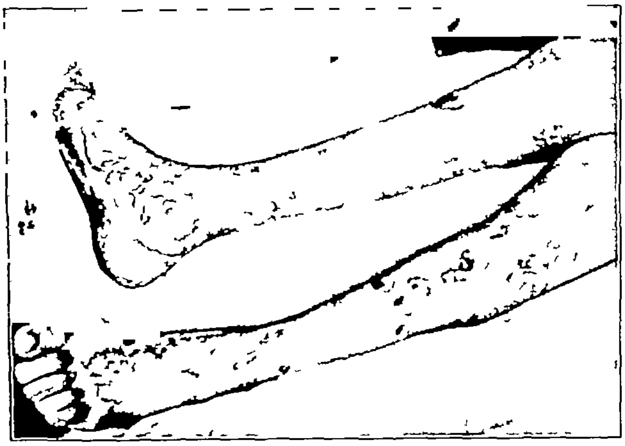

Fig 1 —Kératodermie blennorrhagique

The eruption was attended by no symptoms except at times a slight itching

Histologic Examination —A small lesion was removed from the anterior surface of the patient's leg For the following report I am greatly indebted to Dr Maximilian Herzog

"Transverse hematoxylin and eosin stained sections of the nodule removed show a considerable thickening of the epidermis particularly in the center of the mass Here the interpapillary epithelial pegs are wide and they dip to a more considerable distance into the corium The marked hypertrophy of the epithelial structures is gradually lost toward the edges of the nodule and the epithelial covering toward one side is thinned out and indeed atrophic, with a complete loss of the interpapillary pegs a change brought about by a peculiar condition of the corium and subcutis The latter shows a powerful development of coarse hyaline connective-tissue fibers, between which are seen remnants of sweat glands, bundles of involuntary muscle fibers of the arrectores pilorum but neither hair follicles nor sebaceous glands The appearance of the hyaline connective tissue of the derma somewhat approaches the picture seen in keloid though the fibers are neither quite as coarse nor as completely hyaline as in the latter pathologic process Around the scanty small blood vessels of the subcutis are seen perivascular inflammatory areas, composed of mononuclear cells, polynuclear leukocytes are not seen In the center of the nodules where the epithelial hypertrophy is most marked, the corium and the papillæ show considerable inflammatory infiltration, here are also seen polynuclear leukocytes and cells with a more or less eccentrically placed nucleus and a somewhat square protoplasm which takes the nuclear stain (hematoxylin) well

"These cells are very probably plasma cells There was also seen in the area under description a small vessel, cut longitudinally and completely filled with polynuclear leukocytes Where the inflammatory infiltration is best marked in the corium and the papillæ, it has extended into the epidermis, and a moderate number of polynuclear leukocytes are seen between the epithelial cells Those of the thickened malpighian layer are quite normal in appearance Their prickles are well developed and distinct A few karyokinetic figures are seen, not only in the innermost cells of the malpighian layer, but also more externally, and this in spite of the fact that the tissue had not been fixed in a fluid particularly favorable to the observations of karyokinetic figures The outermost cells of the stratum Malpighii in some places are spindle shaped, the nucleus has remained vesicular, it is contained in a distinct vacuole, but keratohyalin is not demonstrable In other places, however, finely granular keratohyalin is visible and next to such cells a rather thin stratum lucidum A detached stratum corneum is found over most of the surface of the sections, it contains granular detritus and numerous infiltrating, compressed and deformed polynuclear leukocytes"

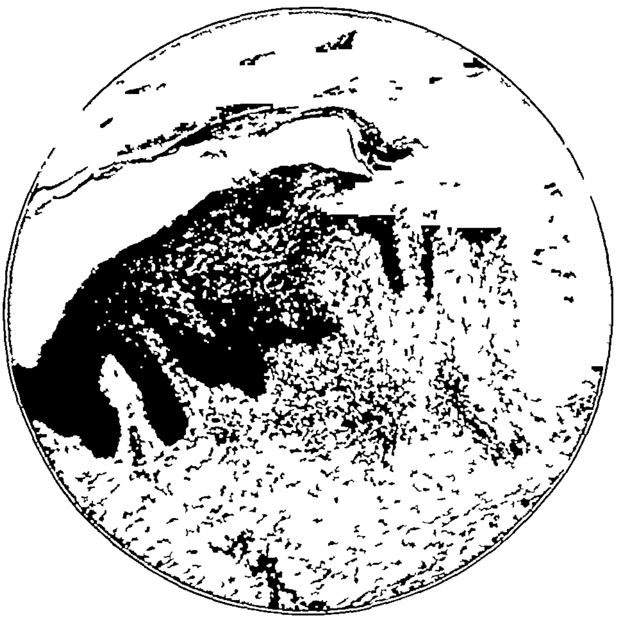

Fig 2 —Kératodermie blennorrhagique × 90

Course of Disease —The patient's general condition at this time was deplorable although mentally he was very intelligent and alert There were emaciation decubitus and almost complete restriction of motion from ankylosis of the swollen and painful joints Blood-counts in the early part of the disease were practically negative, later anemia was present Repeated attempts at culturing the gonococcus from the blood and from fluid aspirated from the joints gave negative results

In order to exclude syphilis several Wassermann tests had been made but these resulted negatively Antisyphilitic treatment had also been tried without effect The urine at times showed slight traces of albumin

The urethral discharge was finally free of gonococci

Considerable amelioration of the skin condition was brought about by the use of a sulphur and resorcin ointment As the lesions disappeared under treatment a slightly pigmented or hyperemic macule marked their site Everything possible was done for the joint The measures used included [illegible] Bier's treatment serum vaccines bowel flushing tonsil treatment orthopedic appliance massage passive motion manipulation under an anesthetic and injections of formaldehyd and glycerin solution into the joint

In May 1911 iritis developed in the right eye and in July, 1911 loss of sight occurred In September, 1911 having been bedridden nearly two years the patient committed suicide At this time only a few yellow cones on the scalp and fingers remained

Necropsy.—A complete necropsy with the following anatomic diagnosis was made by Dr [illegible] chronic deforming polyarthritis passive hyperemia of the lungs left hemohydrothorax passive hyperemia of the stomach, liver and intestine moderate hypertrophy of the heart left fibrinous pleuritis localized fibrinous pericarditis fibrinous adhesions between the spleen and the diaphragm atrophy of the testicles seminal vesiculitis and prostatitis

Bacteriologic examination of fluids removed from the prostate seminal vesicles and ankle joint revealed no organisms

LITERATURE

So far as I can find the present case is the first reported in America Twenty previous cases have been recorded in the literature brief abstracts of which follow Moulages of the disease have been made by Vidal and photographic reproductions by Stanislawsky[1] Baermann[2] Sequeira[3] and Chauffard[4]

Vidal[5] described the first case in 1893

A man aged 24 was admitted in May 1890, to St Louis Hospital Paris suffering from blennorrhagia polyarthritis blepharitis anemia cachexia and a remarkable dermatosis The rash was symmetrical and generalized and without traces of moisture or oozing It was composed of horny crusts situated on the head face and trunk but especially on the lower limbs and around the malleoli The palms and soles were covered with isolated and confluent horny crusts The smallest lesions resembled in coloring and semitransparency, little drops of yellow wax The larger ones yellowish brown in color were formed by a gradual extension of the smaller lesions and were more than a centimeter in diameter A cross section showed a stratification of epidermic layers not unlike a cutaneous horn If a crust was scraped off a slightly moist papule was laid bare

In places reddish and brownish macules indicated the site of horny crusts which had fallen off Only rarely were the horny crusts preceded by vesicles and vesicopustules

Thick horny crusts formed beneath the nails from beneath which also pus could be expressed, exfoliation of the nail plate finally taking place

The eruption strongly resembled the horny syphilid but antisyphilitic treatment had no effect Bacteriologically the lesions were negative

The right knee is shown in the Baretta moulage No 1544, and the right foot in moulage No 1523 of the St Louis Hospital collection in Paris With the subsidence of the blennorrhagia and the arthritis spontaneous involution occurred Two years later under the same conditions i e a blennorrhagia and polyarthritis, Vidal observed a recrudescence of the eruption in the same individual

Jeanselme[6] reported one case

A man aged 21 had gonorrhea, but continued his rough work as a driver during treatment Gonorrheal arthritis, involving the right hip the knees and the feet occurred three or five weeks later Characteristic papules then appeared on the feet and around the toe nails Two months later, the papules and other symptoms were disappearing but complete recovery had not taken place when the report was made

Jacquet and Ghika[7] reported the third case

In this patient a fourth attack of gonorrhea was accompanied by arthritis cardiopathy and numerous horny crusts on the feet a fifth gonorrhea with the same symptoms A sixth gonorrhea with deforming arthritis of the feet was accompanied by aortitis, cachexia and large keratotic plaques

Chauffard[8] reported one case

In his patient there was polyarthritis involving the knees, left ankle and metatarsophalangeal articulation of the great toe Acute ophthalmia nephritis marked cachexia and considerable azoturia were present There were cutaneous horny lesions on the inner upper part of the thigh in plaques, on the back on the right hand (two lenticular protrusions) and on the sole

Robert[9] reported two cases

In the first case an ophthalmia of the right eye was accompanied by cone shaped discrete growths on the knees There was no arthritis In the second a child of 4 corneous lesions occurred on the dorsal surface of the feet There was no arthritis

Launois[10] reported a case

In this patient a gonorrhea was accompanied by general arthritis iritis and profound cachexia Corneous papules appeared in successive crops on the plantar surface of the feet Recovery Horny papules then appeared over the sacral region and inner surface of the left ankle later involving the legs, both feet scrotum and prepuce On the soles, thirteen or fourteen brown papules appeared resembling nail heads Some of the lesions were pustular The nails were also involved When the dark yellow horny crusts were removed, slightly moist, rosy skin appeared beneath The diagnosis of syphilis was made at first but when specific treatment failed, the true nature of the disease was recognized

Stanislawsky[1] reported one case in 1901

In this patient there was gonorrheal urethritis with joint involvement a symmetric horny exanthem and falling off of the nails The patient, aged 28 complained of severe pain in the left ankle three weeks after infection with gonorrhea During the next two weeks the right ankle and the right knee were involved

Malherbe[11] reported a case

The patient had chronic gonorrhea and a general arthritis There were a dozen horny cones on both feet

Two cases were reported by Baermann[2]

In the first patient during a third gonorrhea, there was arthritis of the left foot and hands Horny cones developed on the sole of the right foot In a fourth gonorrhea arthritis of the right knee of the vertebræ and of the great toe developed There were conjunctivitis of the left eye, scaly cones on the feet and diffuse keratosis of the palm of the left hand Recovery

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[1] Stanislawsky Ueber einen Fall von gonorrhoischer Urethritis mit Affektion der Gelenke symmetrischem hornartigen Ausschlag und Ausfallen der Nägel Monatsbericht ueber die Gesamtleistungen a d Gebiete der Erkrankungen des Harn und Sexualapparates 1900 p 643

[2] Baermann G Ueber hyperkeratotische Exantheme bei schweren gonorrhoischen Infectionen Arch f Dermat u Syph 1904 lxix 56

[3] Sequeira J H Kératodermie Blennorrhagique Proceedings of the Royal Society of Medicine London III Part 1 p 77

[4] Chauffard A and Fiessinger N Deux cas de kératose blennorrhagique Reproduction expérimentale et de la lésion cutanée Bull de la Soc Fr de Dermat et Syph May, 1909 No 5 p 162 also Ikonographia Dermatologica 1910

[5] Vidal E Eruption généralisée et symétrique de croutes cornées avec chute des ongles d origine blennorrhagique coincidant avec une polyarthrite de même nature Récidive à la suite d une nouvelle blennorrhagie deux ans après la guérison de la première maladie, Ann de dermat et de syph 1893 p 3

[6] Jeanselme E Troubles trophiques dans la blennorrhagie Ann de dermat et de syph 1895 p 525

[7] Jacquet and Ghika Sur un cas d arthro-blennorrhagisme avec troubles trophiques Soc méd des hôp de Paris Jan 22 1897

[8] Chauffard A Infection blennorrhagique avec productions cornées de la peau Soc méd hôp de Paris April 23 1897

[9] Robert F Contribution à l étude des troubles trophiques cutanés dans la blennorrhagie Thèse de Paris April 28 1897

[10] Launois P L Arthropathies récidivantes Amyotrophie généralisée troubles trophiques multiples d origine blennorrhagique Soc. méd des hôp de Paris July 21 1899

[11] Malherbe Uréthrites à gonocoques récidivantes arthropathies multiples, troubles trophiques cutanés cornés, Gaz méd de Nantes 1901, No 6

In the second case, there was arthritis of the knees, foot and hand The patient was in a cachectic state and had double ophthalmia and generalized, scaly horny lesions The soles of the feet were much thickened Recovery

Roth[12] reported one case

A man, waiter, aged 35, with his second attack of gonorrhea, which was accompanied by balanitis and fever, developed synovitis of the right metatarsus About fifteen small hard dark brown papules, like little cones of wax like transparency, developed on the right foot, especially around the great toe They were situated on sound skin and could be peeled off, leaving a succulent and blood tinged base Similar papules developed on the left foot In five or six weeks, the gonorrheal urethritis subsided and simultaneously the skin lesions receded and disappeared

Chauffard and Froin[13] reported two cases

In the first, a urethritis was accompanied by a general arthritis which involved the temporomaxillary articulations, the vertebræ, limbs, hands and feet Cachexia was present Horny cone like lesions appeared on the feet Recovery In the second case, there was gonorrheal arthritis of the right knee and shoulder and profound anemia Horny papules on the right big toe No gonococci were found in the skin lesions Recovery

Chauffard and Fiessinger[4] reported two cases

In the first patient a gonorrhea was accompanied by arthritis of the knees and ankles There were small horny papules on the back of the foot, predominating on the first phalanx of the big toe The sole was very hard and horny and not painful on pressure In the second case a gonorrhea was complicated by extensive arthritis involving the knee, ankles and temporomaxillary articulation a horny eruption, particularly extensive on the back of the foot and in the region of the instep and a thickened sole The authors made experiments with the view of reproducing the cutaneous lesions Subcutaneous injections of gonorrheal pus gave negative results, but when the skin surface was abraded and the serum underneath the crusts of gonorrheal keratosis was inoculated on the prepared surface the clinical and histologic picture of the spontaneous keratosis was produced It was found necessary to cover the experimentally inoculated area with a glass shield

Rivet and Bricout[14] reported a case of gonorrheal keratosis

In the first and again in a second attack of gonorrheal keratosis eight years later the patient developed polyarthritis The second attack was more severe and was ascribed to neglect of treatment About four weeks later gonorrheal keratosis developed

In March 1910 Sequeira[3] presented a case to the Royal Society of Medicine in London the first instance of the disease shown in England The patient had gonorrheal arthritis of both knees right elbow and right sternoclavicular articulation He was very anemic cachectic and wasted Soles of both feet presented a remarkable appearance The rash had begun about two months after the appearance of specific urethritis and simultaneously with the arthritis, as small pimples" or swellings on both soles Along the inner border of each sole was an irregular horny mass with a nodular surface Smaller masses were situated along the outer side of each sole and the intervening areas were covered with a brownish yellow parchment like thickening of the epidermis The nodules were of a dark brown or purplish brown color The individual swellings measured 0 3 cm to 2 cm across from base to base The excrescences had crept toward the dorsum on both inner and outer aspects of the feet The affected area was sharply limited by a narrow zone of hyperemia The toes were free except for small isolated nodules at the root of the great toes The lesions felt like horn The palms were not affected The patient had been treated with vaccines and the arthritis was better Later a portion of the carapace on the right sole separated, leaving a reddish brown patch

Turnbull reported on the histologic structure of an excised early nodule The nodule was covered by a very thick horny cap The interpapillary processes beneath this were much lengthened Papillæ were very edematous and much infiltrated There was no edema in the subjacent derma but a little infiltration, especially around the vessels Infiltration in the derma consisted of lymphocytes with many mononuclear and binuclear plasma cells (Unna Pappenheim) There were a few neutrophilic polymorphonuclear leukocytes in the upper part of the papillæ and many in the capillaries Only one or two eosinophils were found No mast cells seen In the epidermis the lower part of the malpighian layer showed clear prickle borders, karyokinetic figures were present in the basal layer A varying number of neutrophil leukocytes were seen in these layers A stratum granulosum was only recognizable in places At this level, very large numbers of neutrophil polymorphonuclear leukocytes in masses occupying rounded spaces formed by the degeneration of epithelial cells The superjacent horny layers contained many flattened nuclei and collections of neutrophil leukocytes lying in strands between the horny layers A superficial layer of horny substance without nuclei was present in part of some of the sections

Williams[15] reported a case of gonorrheal keratosis of the hands and feet

A man, aged 21, had previously had hyperidrosis pedis and keratosis of the feet He then developed a urethritis which was followed in one month by arthritis of knee and ankle One month later a diffuse plate like keratosis of the soles developed together with a few corn like nodules A few days later the hands showed yellow horny cones

Little and Douglas[16] reported a case

The patient, a policeman, aged 30, in a second attack of gonorrhea developed arthritis of both knees Temperature, 102 and higher, was present and he became weak and unable to stand The soles of the feet showed numerous conical, translucent, brown horny lesions, raised ¼ to ½ inch above the niveau On the dorsum of the feet and on the hands and elbows were several rupia like scabs The nails were exfoliating An eruption of warty scabs had appeared on the elbows during a similar attack two years before

ETIOLOGY

Gonorrheal arthritis has been present in all but two of the reported cases of keratosis blennorrhagica While the etiologic relation of the gonorrheal general infection to the eruption is not absolutely proved, the probability that there is such a relation is very great Baermann[2] believes an etiologic connection is established beyond all doubt (1) because of their constant association, the eruption waxing and waning with the infection, (2) because a similar eruption in other diseases or as an idiopathic affection has not been described

Chauffard and Fiessinger[4] state that in the presence of severe and resistant gonorrheal arthropathies we may assume the existence of gonococcus septicemia The gonococcus undoubtedly invades the skin and is the direct cause of the eruption of keratotic crusts As accessory causes, which act by preparing the ground successfully, they mention the following factors

1 Confinement to bed with inhibition of motion

2 Abundant perspiration with infrequent ablutions and change of dressings

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[12] Roth, A Zur Kasuistik des hyperkeratotischen gonorrhoischen Exanthems München med Wchnschr, May 30 1905 p 104

[13] Chauffard A and Froin Sur la keratose blennorrhagique Arch de med. exper et d anat path September 1908 No 3

[14] Rivet L and Bricout C Sur un cas de keratose Blennorrhagique Bull méd 1909 p 851

[15] Williams W Proceedings of the Royal Society of Medicine London 1911 iv Part 1 p 12

[16] Little E G G and Douglas S R Proceedings of the Royal Society of Medicine London 1911, v Part 1 p 8

3 The wearing of rubber stockings and the prolonged application of Bier's band

These factors act by favoring the accumulation of scales and the maceration of the epidermis The authors were led to this view by the results of their inoculation experiments Having abraded the epidermis, they rubbed in the serum obtained from beneath a keratotic crust, covered the inoculated area with a watch crystal, and reproduced the eruption macro- and microscopically

This was only possible, however, in a keratotic subject and was unsuccessful in a healthy subject and in animals These authors discard the trophic theory of the eruption held by the earlier French writers for the following reasons

They were unable to confirm Jaquet's observation that the reflexes were always increased and after a lumbar puncture in one of their cases the results were negative From this they inferred the integrity of the nervous centers The same authors discard the gonotoxic theory and the hypothesis that the staphylococcus is the cause of the keratosis

PATHOLOGY

The histologic structure has been examined by Chauffard,[8] Baermann [2] Chauffard and Froin,[13] Chauffard and Fiessinger,[4] by Turnbull in Sequeira's[3] case, and in the present case, with similar, but not characteristic, findings A Chauffard,[8] in 1897, made the first biopsy He showed the existence of a papillary dermatitis with leukocytic infiltration and immigration of the leukocytes into the malpighian interstices Subsequently, Baermann[2] stated that the horny formations characteristic of the disease were not true keratoses but were the results of a parakeratosis On this account, he proposed the title, "dermatitis papillaris parakeratotica," a name which has not, however, been generally accepted

In their latest article, Chauffard and Fiessinger[4] corroborate Baermann and state that the leukocytic infiltration, deep and epidermic, composed of polynuclear leukocytes and mast cells together with parakeratosis, are the distinguishing features of the histologic picture Gonococci have never been found in the lesions

CLINICAL CHARACTERISTICS

Buschke[17] has made a complete study of the eruptions observed in gonorrhea He differentiates four groups

1 Simple erythema This form is the most frequent Among these cases, there are naturally some balsamic erythemas but excluding these, there are some cases that cannot be brought into etiologic relation with the medication

2 Urticaria and erythema nodosum Skin lesions exactly simulating urticaria and erythema nodosum have occurred in gonorrheal infections Joint pains and arthritis have been present in some of the cases Endocarditis and pericarditis have also been observed

3 Hemorrhagic and bullous exanthems These lesions have usually been associated with evidences of gonococcus septicemia and are possibly of embolic origin

4 Hyperkeratosis In this group in which may be included the present case the lesions are probably specific Baermann [2] who has made a special study of this group divides the cases of gonorrheal keratosis into

A A generalized form Here the lesions may occur anywhere — in one case even on the mucous membranes The extremities are the sites of predilection The legs and forearms are involved more commonly than the thighs and arms while the face and scalp are the rarest sites

B A localized form involving especially the feet and hands This is much more the common type

Of the twenty previous cases, four were of the generalized and sixteen of the localized type Chauffard and Fiessinger point out the special preference of the disease for the internal borders of the feet and the dorsum of the big toe in the vicinity of the nail matrix

When occurring on the head, trunk or extremities the lesions are, as a rule isolated, sometimes confluent hornlike crusts, 0 2 cm to 3 cm in diameter

On the soles or palms a diffuse often irregular dirty yellowish thickening of the epidermis with projections like a "relief map" is the usual finding

In the present case the circinate and serpentine configurations, noted especially on the legs were an interesting feature

Destruction or ulceration of the skin never occurs Hence there is no scarring the site of former lesions being marked only by a slight hyperemia or pigmentation which finally disappears

In the diagnosis syphilis must be considered Some of the lesions look not unlike a peculiar psoriasis with a complicating seborrhea The general picture however is quite unlike any of the ordinary dermatoses and in connection with a gonorrheal arthritis could scarcely be mistaken

TREATMENT

Chauffard and Fiessinger[12] recommend the use of soap and hot water for its macerating effect on the lesions

In the present case a resorcin and sulphur ointment was of benefit Spontaneous involution of the eruption takes place with the subsidence of the arthritis

59 East Madison Street

ABSTRACT OF DISCUSSION

Dr Joseph Zeisler, Chicago Most of us are acquainted with kératodermie blennorrhagique merely by having seen some of the illustrations of that rare condition when occurring on the soles of the feet We have reached the point where we understand the systemic effects of the gonococci better than before and Irons' experiments in regard to the allergic reaction after cutaneous vaccination with dead gonococci have certainly been noteworthy in this respect That the gonococcus may exert a peculiar local irritating effect on the skin can be seen in the well known production of venereal warts The rarer form of blennorrhagic keratodermia might be explained as an analogous formation

Dr M L Ravitch, Louisville In these cases we may have the same process as we see in syphilis In syphilis when the infected individual has the spirochetes deposited in the neighborhood of the glans penis Nature does her utmost to overcome the foreign invasion and sends out serum and other defensive fluids These agents try to envelop the spirochetes and kill them and thus we have a chancre The spirochetes in the majority of cases are not killed they invade the deeper tissues, are absorbed by the lymphatics and blood vessels and the entire system becomes impregnated with them Nature makes another effort to kill them sending out defensive fluids and we have the secondary eruption Nature having failed the physician comes to the rescue and applies chemical means such as mercury and different preparations of arsenic In the majority of cases the spirochetes are destroyed but in some instances they remain lodged [illegible] in the system or rather become encysted They become latent [illegible] as we might call them In a year or in many years they may be gradually revived and become quite active [illegible] system becomes less active in defensive power [illegible] a fresh syphilitic development or [illegible] reinfection A similar theory can be applied in Dr Simpson's case The patient's system being [illegible] invasion of microorganisms the gonococci [illegible]

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17 Buschke Arch f Dermat u Syph 1899 xlviii 181 and [illegible]

into the circulation, sensitized the tissues and produced the phenomena described.

Dr Frank E Simpson, Chicago The relation of the gonococcus to this form of dermatitis is very interesting The gonococci have been looked for in the lesions very often, but have never been found, which, perhaps, is simply due to the fact that they were not looked for at the proper time If they should be found eventually it would tend to uphold the contention that all the parakeratoses are due to a microbic agent

APPENDICITIS COMPLICATING PREGNANCY

PALMER FINDLEY, M D
Professor of Gynecology College of Medicine University of Nebraska
OMAHA

It is my purpose to present briefly the debatable points, of interest in relation to appendicitis as a complication of pregnancy, labor and the puerperium Obstetricians were slow to appreciate the frequency and gravity of appendicitis as a complication of pregnancy This was so because appendicitis was not clearly recognized until Fitz, in 1886, substituted the term appendicitis for typhlitis and perityphlitis Eight years later, Paul F Munde[1] reported three cases of appendicitis complicating pregnancy and two years later R Abrahams[2] added twelve cases The clinical deductions of Munde and Abrahams are generally accepted to-day In fact there has been little of importance that has been contributed by later writers The most elaborate contribution to the subject is that of H H Schmid who collected 486 cases of appendicitis complicating pregnancy from the literature of the past twenty years

Appendicitis occurs with greatest frequency during the child-bearing period, hence it is not strange that it should be found to complicate pregnancy But we are not to conclude that the combination is a coincidence in all cases Nearly all authorities agree that a primary attack is not incited by the pregnant state but that there is a very great liability to recurrent attacks during pregnancy, labor and the puerperium

As to the frequency with which women who have suffered from one or more attacks of appendicitis prior to pregnancy experience a recurrent attack in event of pregnancy I quote the observations of Goedecke[3] He reported sixteen cases of pregnant women who had suffered from an attack of appendicitis prior to their pregnancy and of this number five went through pregnancy and puerperium with no trouble from their appendix while eleven had a recurrent attack during their pregnancy

The explanation for recurrent attacks in pregnancy, lies in the vascular engorgement of the appendix, in the constipation which is so commonly associated with pregnancy, in the toxemias of pregnancy, in the encroachment of the uterus in the early months of pregnancy, and in the puerperium and, finally in the occasional presence of adhesions binding the appendix to the uterus and its appendages While these factors doubtless tend to incite a recurrent attack of appendicitis they cannot be said to create a primary attack

I am unable to arrive at any estimate of the frequency of the complication Treves in 1895 reported six cases of appendicitis complicating pregnancy out of a total of 1,000 cases of appendicitis in women Norris[4] operated on 445 women of appendicitis, six of whom were pregnant Sonnenburg performed 2,000 appendectomies, in four of which the appendicitis occurred in pregnancy and the puerperium Baldwin had six pregnancies in 1,800 appendectomies, Vineberg nine in 731 and v Eiselberg thirteen in 520 E Fraenkel[5] found five cases in 40,000 pregnancies, Schauta four in 34,000, v Rosthorn[6] two in 27,000, Fellner none in 4,000, v Oordt four in 10,000 and Chrobak and v Rosthorn thirteen in 13 000

The gynecologist and obstetrician doubtless find a much larger percentage of appendicitis complicating pregnancy for the very good reason that they see more pregnancies and fewer cases of uncomplicated appendicitis

Appendicitis complicating pregnancy presents a serious problem because of the occasional difficulties encountered in making an early diagnosis It is true that both mild and severe attacks of appendicitis often go unrecognized in the course of pregnancy, in labor and in the puerperium Mild attacks are interpreted as the ordinary discomforts of pregnancy and the severe cases occurring in the puerperium are frequently regarded as types of puerperal sepsis Again, we find these attacks interpreted as intestinal colic, renal colic, ureteropyelitis, threatened miscarriage, salpingitis and tubal pregnancy

While mild attacks do not alter the course of pregnancy, severe attacks will usually result in the interruption of pregnancy, and not infrequently in the death of the fetus *in utero* The infection may extend to the uterus by way of the fallopian tubes or by way of the broad ligaments and uterine wall to the placenta In this manner, the colon bacillus has been conveyed to the placenta and fetus The large percentage of fetal mortality observed in the reports of cases is due in part to the interruption of pregnancy prior to the period of viability and in part to fetal toxemia In eighty-nine appendectomies on perforated appendices there were thirty-three abortions after operation In fifty non-perforated cases seven abortions followed operation Boije[7] referred to eighteen cases in Engstrom's clinic in which pregnancy was not interrupted A gangrenous appendix with general peritonitis was operated on in the fourth month of pregnancy by T K Holmes[8] and pregnancy went to term with the delivery of a healthy child Several such cases are on record

Falk[9] drained an appendiceal abscess containing two liters of pus without interrupting a six months' pregnancy It is incumbent on the surgeon, therefore, to employ every possible means of preventing miscarriage after operating When a viable fetus is born early in an attack the chances for the life of the child are not greatly influenced by the appendiceal infection but when the delivery occurs late in the course of a severe attack of appendicitis the fetal mortality is great as the result of sepsis It has been frequently observed that death of the mother rapidly follows the interruption of pregnancy While miscarriage is regarded as a contributing factor to the fatal issue, sepsis is the chief determining factor

It is generally conceded that appendicitis complicating pregnancy and the puerperium runs a more rapid and destructive course than in the non-gravid state It is true that appendiceal abscesses are particularly liable to rupture into the free peritoneal cavity The explanation lies in the fact that the growing uterus of pregnancy and the contracting uterus of labor and the puerperium form the inner boundary of the abscess, hence the great liability of the abscess to rupture

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty Third Annual Session held at Atlantic City June 1912

[1] Munde P F Med Rec New York Dec. 1 1894 Oct. 26 1895 March 23 1895

[2] Abrahams Am Jour Obst., 1897 xxxv

[3] Goedecke Zentralbl f Gynäk 1912 No 15

[4] Norris Am Gyn and Obst. Jour xlv 425

[5] Fraenkel E Samml klin Vortr 1898 No 220 S p 1335

[6] Von Rosthorn Med Klin 1907 S p 339

[7] Boije Chap XXIX Frommell's Jahrb über Geb u Gyn 1903

[8] Holmes T K Am Jour Surg and Gynec February 1903

[9] Falk, Otto Zentralbl f Gynäk 1900 xl S p 193

Myers[10] reported nine cases of appendiceal abscesses with three deaths from general peritonitis, and again Meyers collected the records of sixty-nine cases of appendicitis in which the patient was operated on in the course of pregnancy Of these patients forty-nine (71 per cent) developed a gangrenous appendix with abscess formation Babler[11] collected 235 cases of appendicitis complicating pregnancy and the puerperium In a total of 207 cases the appendix perforated in 103, eighty-nine patients were operated on with thirty-six maternal deaths In fourteen of the perforated cases no operation was done, all the patients died There were fifty nonperforated cases in which operation was done with one maternal death Twenty-eight cases occurred in the puerperium, eighteen were perforated, in twelve the patients were operated on with four maternal deaths Two of the five patients not operated on recovered after rupture of the abscess into the rectum In all of the non-perforated cases occurring in the puerperium the patients recovered Babler very pertinently concludes "The mortality of appendicitis complicating pregnancy is the mortality of delay "

The evidence is convincing that appendicitis runs a more rapid and destructive course when complicating pregnancy and the puerperium and therefore demands prompt consideration at the hands of the surgeon

If it be true that appendicitis is particularly liable to recur in event of pregnancy it follows that women in the child-bearing period who have suffered one or more attacks of appendicitis present a very special indication for the removal of the appendix

I would not go so far as does Fraenkel[5] in advising the removal of the appendix in all attacks, both mild and severe, occurring in the course of pregnancy When the attack is mild, unless oft repeated, it would seem advisable to postpone operation until the end of the puerperium When there is a definite pronounced attack in the course of pregnancy or the puerperium the demand for immediate operation is imperative in view of a possible rapid and destructive course The earlier in the course of both pregnancy and appendicitis the operation is performed the better will be the result When an appendiceal abscess is recognized drainage should be established without delay because of the great liability of rupture of the abscess into the peritoneal cavity This applies as well to abscess formation at the beginning of labor when the contracting uterus would be so liable to disseminate the pus The greatest caution must be exercised to prevent the contamination of the genital tract by the escaping pus

It is seldom that pregnancy is interrupted in the course of a mild attack of appendicitis but it is the rule that pregnancy is interrupted in the course of severe attacks When operation is performed in such cases every precaution *should be taken to prevent miscarriage* In operating the uterus should be carefully guarded from undue handling and exposure and after operation opiates should be administered to the patient and absolute rest enjoined

In severe attacks occurring at the end of pregnancy and without evident abscess formation the rule should be to induce labor and to remove the appendix at the completion of labor

In the past six years I have had fifteen cases of appendicitis associated with pregnancy, labor and the puerperium The first seven of these cases were reported in the *American Journal of Obstetrics*[12] the others are given here

CASE 8 —Mrs H aged 32 quartipara had a severe attack of appendicitis two years before the present attack and had since suffered from tenderness and pain in the appendiceal region with gastro intestinal disturbances Her fifth child was born at term, March 2 1911 and six hours after the completion of labor the temperature reached 101 5 F in forty eight hours it was 105 6 F, and the pulse was 120 There was intense pain in the region of the appendix rapid distention of the abdomen nausea obstipation and muscular rigidity over the right lower quadrant I first saw her at the end of the third day of the puerperium and operated within two hours The appendix was not adherent but was large, congested and contained a small amount of pus Recovery followed

CASE 9 —Mrs S, aged 22 secundipara first complained of pain in the region of the appendix three years before In these three years she had had several moderately severe attacks of appendicitis, the last was not severe but her physician advised the removal of the appendix in view of the fact that she was again pregnant I operated on her in the fifth month of gestation The appendix was thickened but contained no pus and no adhesions existed Recovery followed and the pregnancy proceeded to term with the delivery of a healthy child

CASE 10 —Mrs W aged 28 primipara entered the hospital in the twelfth week of gestation Five years previously she had her first attack of appendicitis Since then she had had several recurrent attacks of moderate severity the last was in the fifth week of her present pregnancy These attacks were of moderate severity She suffered from the usual gastro intestinal disturbances of chronic appendicitis and the pain in the right iliac region had been steadily increasing as the pregnancy advanced I removed a thickened non adherent appendix Recovery followed without the interruption of pregnancy

CASE 11 —Mrs S aged 22 primipara was about ten weeks pregnant when she experienced her second attack of appendicitis the first having occurred six months before I operated on her a few days after the acute symptoms of the second attack had subsided and removed a thickened congested appendix which was not adherent and did not contain pus Recovery followed and the pregnancy proceeded to term with delivery of a healthy baby

CASE 12 —Mrs I aged 31 primipara, had never experienced an attack of appendicitis until her present pregnancy One week before admission to the hospital she had a moderately severe attack The appendix was removed in the ninth week of gestation it was in the subacute stage of a catarrhal inflammation Recovery followed The pregnancy proceeded to term

CASE 13 —Mrs K aged 21 nullipara miscarried at the seventh month of gestation She experienced great pain in the region of the appendix throughout labor I saw her three weeks after the miscarriage when I drained an appendiceal abscess through the right lateral incision The [illegible] contained fully two quarts of pus The [illegible] kept for the first three weeks following the miscarriage [illegible] it was stated by her physician that her temperature was elevated to 101 F by the end of labor and ranged from 101 F to 103 F to the time of operation [illegible] this was her first severe attack [illegible] preceding mild attack Recovery followed

CASE 14 —Mrs S aged [illegible] nullipara [illegible] Dr Peters of Stanton Neb [illegible] three weeks pregnant Two days after her first confinement she experienced her first attack of appendicitis which was moderately severe This was three and one half years ago Since then, she has had more or less discomfort in the neighborhood of the appendix. In her second pregnancy this discomfort was increased She gave birth to her second child eighteen months ago For two or three days preceding labor and for a week following labor, the pain in the right side was very intense The abdomen became distended, there was elevation of temperature and the bowels were moved with great difficulty She continued to suffer from pain in the right side to the time of operation I removed an appendix which was distended throughout its entire course with bloody feces, there were no adhesions Recovery ensued without miscarriage

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[10] Myers Max Am Jour Obst March 1906 p [illegible]

[11] Babler The Journal A M A Oct 17 1908 p 1 10

[12] Am Jour O[illegible] [illegible] 6

Case 15 —Mrs B, aged 24, primipara, referred by Dr Sullivan of St Edwards, Neb, is in the seventh month of gestation She has had four severe attacks of appendicitis—the first eighteen months ago, the second one year ago, the third three months ago, when she was about four months pregnant and the last one week ago All these attacks were typical and severe At no time since her first attack has she been free from discomfort referable to the appendix Her last attack has completely subsided, leaving nothing but some localized tenderness In the effort to save the child I am keeping her under observation in the hospital and should another attack set in she will be operated on without delay

CONCLUSIONS

These fifteen cases present several points of interest •

1 In all but one of the fifteen cases there had been previous attacks of appendicitis

2 Six of the cases were mild attacks, in which all the patients recovered without the interruption of pregnancy Ten were severe attacks in which seven patients recovered and three died In all there were three deaths in fifteen cases and in one of the fatal cases the patient was not operated on

3 In the fifteen cases the attacks occurred in labor in one, in the puerperium in five, and in pregnancy in nine cases

4 The five cases occurring in the puerperium were of unusual severity

5 Of the fifteen cases two patients died of septic peritonitis and one of bronchopneumonia One of these patients was not operated on

6 In the majority of cases the attacks recurred in the early months of pregnancy

7 Mild attacks showed no disposition to disturb the pregnancy

8 In Case 15, the patient refused operation in a severe attack which occurred in the third month of gestation She had recovered from her last attack before entering the hospital and inasmuch as she was in her seventh month of pregnancy it was thought advisable to delay operative interference in the interest of the child, but with the understanding that she would be operated on at the onset of a subsequent attack

9 In Cases 4 and 6[11] the fetus was dead *in utero,* the latter at term the former in the early weeks of its development

10 In Cases 2 and 6[11] there was a gangrenous appendix with abscess formation which rapidly spread to the general peritoneal cavity and resulted fatally

11 In no instance was pregnancy interrupted after the removal of the appendix

12 These experiences lead me to the conclusion that pregnancy probably has no influence in creating a primary attack of appendicitis but has a very great influence in creating renewed attacks

13 Of women who have had appendicitis prior to pregnancy 50 to 60 per cent will suffer more or less disturbances referable to the appendix in subsequent pregnancies

14 Inasmuch as appendicitis complicating pregnancy and the puerperium tends to run a rapid and destructive course, it is particularly hazardous to delay operative interference in sharp attacks

15 The earlier in the attack and the earlier in the course of pregnancy the operation is performed, the better will be the results

16 Wagner estimates the mortality of non-operative severe cases at 77 per cent. as contrasted with a mortality of 6 7 per cent in cases of all grades of severity in which operation is done within the first forty-eight hours, a record that is not exceeded in operating appendicitis that is not complicated by pregnancy Doubtless this record of 6 7 per cent maternal mortality in all cases in which operation is done within forty-eight hours from the beginning of the attack would be materially reduced were these patients operated on within the first twenty-four hours

3602 Lincoln Boulevard.

ABSTRACT OF DISCUSSION

Dr. John B Murphy, Chicago The mortality of appendicitis is enormously greater than the mortality of any other condition What are the anatomic and the pathologic conditions that contribute to this mortality? The anatomic conditions that contribute to the mortality are, as shown, the fact that as the uterus enlarges during pregnancy it removes from the appendix its natural protectors, the omentum and the intestine There are two opportunities for infection to occur hematogenous conditions in the bladder and rectum, and a severe attack of appendicitis In miscarriage or labor, infective material is scattered all about One focus of infection is close to the outlet of the pelvis, infection may occur either through the blood vessels or by direct transmission from the vagina We must determine how to avoid these dangers Dr Findley emphasizes these two facts, that when the condition was diagnosed and remedied early the mortality was practically *nil,* when the condition was diagnosed late and the endeavor to remedy it was also late, the mortality was colossal Therefore, we go back to the proposition Can we diagnose the condition early? If we can diagnose the condition early, what is the excuse for waiting? We can diagnose the condition early even in the presence of pregnancy What are the conditions that we have to differentiate? Hematogenous infections of the kidney, infection of the bladder, obstruction to the ureter Lesions of the kidney can easily be differentiated from acute appendicitis, with and without pregnancy The onset of pain is the same in both The reflexes are normal in both, leukocytosis occurs in both, particularly in the metastatic variety of infection You have, therefore, the principal symptoms, except the local manifestation, the same in both One of the important points in the differentiation is the exclusion of kidney and gall bladder infection It is easy to exclude gall bladder disease from infection of the appendix, but it is not always easy to exclude renal complications You can do it, however, in all cases You must resort to fist percussion Have the patient sit on the side of the bed and let the hands come clear down, so as to force the kidney high up Then place the hand over the left kidney and strike it with the closed fist If there is an acute obstruction the patient will immediately spring up and it may be all he can do to keep from striking you If there is any one thing that a man of experience has concluded, it is that he does not know what is going to occur in the ten or twenty or forty hours following the onset of the appendicitis If you do not know what is going to happen, what justification have you for taking the hazard which Dr Findley has accentuated?

CARE OF SCARLET FEVER PATIENTS

MILLS STURTEVANT, M D
Resident Physician Private Hospital for Scarlet Fever and Diphtheria Patients
NEW YORK

At present there is no generally accepted treatment for scarlet fever It is a self-limited disease and nothing that we now know will shorten its course or abate its severity Our work consists in the prevention of complications as far as is in our power and in so assisting Nature in her efforts at repair as to make convalescence as rapid as possible and recovery complete Such is the number of possible complications and the scope of care desirable that an anatomic division has seemed a logical method of presentation of treatment Therefore after a brief discussion of diet, the untoward possibilities will be taken up in this way rather in the order of frequency

DIET

As long as the patient has a temperature above normal, the diet consists entirely of water, milk and malted milk or milk-sugar This diet is also adhered to when the febrile albuminuria persists as a faint trace, with or without casts, after the fall in temperature While it is realized that the weight of the patient should be the index to the number of calories given, the accompanying table has proved of great service as a rapid, rough guide to the amount of milk and water desirable and to its reinforcement with sugar As some patients will be on this diet for three or four weeks, the amount of food given during this time has an important bearing on convalescence

TABLE SHOWING AMOUNT OF MILK AND SUGAR GIVEN DURING FEBRILE STAGE (SEVEN FEEDINGS A DAY AT TWO HOUR INTERVALS)

	Age Years	Calories	Amount Each Feeding Ounces	Total Ounces Milk	Total Ounces Water
Children	1 2	600	4	28	28
Children	2 6	1 000	6	42	42
Children	6 15	1 350	8	56	56
Adults		2 000 to 5 000	10	70	56

To the milk given to adults it is necessary to add 3 to 7 ounces of milk sugar to make up the calory content

The number of feedings will of course have to vary in different cases as the arrangement of sleeping hours the amount of milk borne well at a time and the appetite of the patient are determined If milk-sugar is well taken it provides a slight diuretic and slight aperient action In cases in which milk is not well borne, buttermilk may be given Orangeade lemonade and cream of tartar drink flavored with lemon may be used freely in place of water

When the temperature is normal and has been normal for twenty-four hours farinaceous foods may be given A satisfactory way is to add new foods gradually for example cream soups with crackers are given the first day the diet is increased milk toast the second rice or farina pudding the third and so on As the patient is given farinaceous foods and these come more and more to replace the milk it is necessary to exercise some care that the total amount of fluid in twenty-four hours be kept up It is desirable that in patients over 6 years old not less than 100 ounces of fluid be given As solid foods are added, the milk can be replaced by water

It is not wise to take further liberties with the diet until the twenty-first day The danger of giving nitrogenous foods increases as the twenty-first day is approached and should not be risked no matter how mild the case On the twenty-first day fish may be given then green vegetables then bacon to which are then added other red meats chicken meat soups tea coffee or cocoa and last of all eggs The diet list in use at present at the hospital follows

Milk Diet—When specially ordered milk sugar malted milk buttermilk cream soups and top milk mixtures

Farinaceous Diet—Crackers bread toast zwieback arrowroot rice cornstarch farina and preparations of these baked potatoes, barley jelly other cereals stewed prunes and baked apple with cream

Light Diet—In addition to the above fish green vegetables bacon

General Diet—Red meats fowl meat soups pastry tea coffee, cocoa and eggs

SKIN

For the discomfort during the rash the skin may be anointed with cocoa butter or cold cream If the itching be excessive there is nothing which gives as much relief as gently sponging with 0 5 per cent dilution of liquor cresolis compositus At the hospital a proprietary emulsion of soap with tincture of benzoin and boric acid is used a great deal No greasing is done during desquamation unless there is discomfort Control of the desquamated epithelium is not so much a factor in a contagious-disease hospital, as the excretory function of the skin is deemed more important

Means to hurry the process of desquamation are many It is impossible to give any one best method As the soles of the feet are the last to desquamate it is their treatment with which we are concerned As soon as patients are up and about they are encouraged to soak their feet well each day in hot water after which the feet are rubbed with a rough towel or moist pumice stone The bottoms of the feet may be painted with tincture of iodin Salicylic acid ointment 6 per cent, may be bound on over night

HAIR

Itching of the scalp during the first three weeks is treated and prevented by washing with alcohol This should be followed by rubbing in a small amount of white petrolatum At the end of the fourth week and twice during the fifth and sixth weeks the hair and scalp are washed with tar soap then with the following hair lotion

℞		Gm or c c	
Hydrargyri chloridi corrosivi		15	gr iv
Borici acidi		20	gr [illegible]
Glycerini		30	℥ i
Alcoholis		120	℥ iv
Aquae	q s ad	240	℥ viii

The hair and scalp are then dried thoroughly and the following hair tonic well rubbed in

℞		Gm or c c	
Quininae sulphatis		4	gr lx
Olei ricini		30	℥ i
Olei bergamottae		[illegible]	[illegible]
Olei neroli			[illegible]
Spiritus ammonii aromatici	q s ad	240	℥ viii

Mix and dispense with [illegible] label

EYES

For the conjunctival injection seen in many cases [illegible] during the first week cold boric acid compresses [illegible] exclusion of any bright light from the [illegible]

In the more severe cases, a drop of epinephrin chlorid in each eye followed by a drop of 5 per cent argyrol is indicated

THROAT

The care of the throat can well be summed up in one word—cleanliness This is best accomplished by irrigations of 4 per cent solutions of sodium bicarbonate, or lime-water, or normal saline At the hospital the last is used The irrigations are given at a temperature of 110 F with a fountain syringe, the bag of the syringe held about one foot above the head of the patient The patient is turned on his side, protected by a rubber blanket, and the saline at low pressure allowed to run over first one, then the other, tonsil The head is turned enough so that the fluid after bathing the tonsil runs out of the mouth and into a pus basin Sometimes a little practice is necessary before this can be done satisfactorily but on the third or fourth attempt usually the irrigation is borne very well and the patient experiences immediate and marked relief Irrigations should never be given with much force as the exudate may be forced back into the pharynx and so to the ears In children too young to cooperate with the nurse, a sheet is pinned about the patient securing the arms and legs, a small roll of gauze bandage placed between the teeth and the irrigations given on a small dressing table Sometimes with mild throats it is sufficient to cleanse the tonsils gently with a cotton pledget, soaked in sodium bicarbonate solution, wound about the nurse's finger

Gargles are not used Some relief is often obtained by a lozenge of the following composition

℞	Gm or c c	
Mentholis	007	♏ 1/80
Olei anisi	002	gr 1/35
Acidi benzoici	005	gr 1/12
Eucalyptolis	004	♏ 1/16

Small pieces of ice held in the mouth sometimes give distinct relief

External treatment may be in the form of heat, cold or wet dressing For routine treatment the throat-bag filled with cracked ice is used This seems to give more relief and better results in most cases than any other measure There is however, the exceptional case in which large, hot poultices of flaxseed are to be preferred The use of wet dressings will be discussed under 'Lymph-Nodes '

NOSE

The nose should never be irrigated unless both middle ears are involved Drainage of the nose is accomplished by keeping the secretions as fluid as possible and by blowing the nose properly Rendering the secretions fluid is best accomplished by putting in each nostril white petrolatum, which is made slightly more fluid by placing the tube in hot water before each application This should be done four or five times in twenty-four hours The patient should be taught to blow the nose gently and frequently and not to sniff secretions back into the nasopharynx In conjunction with the petrolatum treatment if there is congestion and swelling of the mucous membrane the nose is sprayed with eucalyptol and menthol 1 per cent in liquid petrolatum When this treatment does not suffice and the patient does not breathe readily through the nose, a cotton swab on an applicator the swab soaked in epinephrin chlorid or adrenalin inhalant, is applied to each side of the nose This is followed by a similar application of 20 per cent argyrol

When the acute stage is over and swelling of the mucous membrane with exudate persists, the glycerite of tannin either full strength or diluted with water often gives good results This may be used to advantage in a similar condition of the throat

EARS

Proper care of the nose and throat is the best preventive of middle-ear trouble Patients should always be warned against inflating their ears, as many discover that this is temporary relief from the sense of fulness they experience as a result of swollen eustachian canals

Daily examination of the tympanum should be made by the physician This is very important The onset of many cases is very insidious and indeed the first warning may be a discharge from the ear The tympanum may rupture and pus be discharged from the middle ear with no warning of pain or rise of temperature

If otitis media does occur incision of the tympanum should be performed early This may or may not be followed by irrigations of warm sodium bicarbonate solution every two hours If irrigations are not given, the canal should be kept open by cleaning thoroughly with cotton on an applicator, the frequency depending on the amount of discharge

The prophylaxis of mastoiditis is the proper treatment of the otitis media Throat-bags filled with ice should be applied to the mastoid as soon as the tympanum is incised Or cold may be applied to the mastoid region by means of the Leiter coil With tenderness over the antrum relief is often obtained by means of leeches placed over the mastoid Cases of otitis media should be seen daily by someone familiar with the ear conditions of scarlet fever It is such a person who should decide when to operate

LYMPH-NODES

With the onset of scarlet fever there is a polyadenitis of varying intensity Nodes other than the cervical rarely need attention Care of the nose and throat contribute to preventive treatment of these nodes At the Hospital for Scarlet Fever application of the ice-bag to the throat during the first week of scarlet fever may be said to be almost a routine procedure This treatment is sufficient for most cases Occasionally there is a case which does better with poultices For the case which does not improve with hot or cold applications, dressings of the following are given

℞	Gm or c c	
Plumbi acetatis	60	℥ iv
Aluminis pulveris	60	℥ ii
Alcoholis	250	℥ xvi
Glycerini	120	℥ viii
Aquæ	1000	℥ lxiv

Mix and dispense with "shake label"

Huge, very wet dressings of this are kept on the enlarged nodes continuously These dressings are most efficacious at the temperature of melting ice With this treatment there has not been a case of suppurative adenitis in nearly 400 cases of scarlet fever at the hospital If suppuration takes place, incision and free drainage are indicated

LUNGS AND PLEURÆ

Bronchopneumonia which may exist, is usually an additional focus in a severe general infection, and should be treated as when occurring elsewhere

Pleurisy is a troublesome complication, usually occurring in the third or fourth week All effusions, no matter how small, should be aspirated early Pleurisy in scarlet fever is likely to become suppurative, when operative interference is indicated.

Scarlet fever in a tuberculous subject is a very serious thing. There is usually a lighting up of the tuberculous process. In such cases the danger of the tuberculosis becomes greater than the risk of nephritis and a more liberal diet should be given. Bacon which has been soaked in cold water several hours can be given early with little risk. Cod liver oil, if borne well, should be given. In many cases it seems desirable to give two eggs in milk per day. One egg can be beaten up in a pint of milk to be taken in two instalments, two hours apart with a glass of water in between. Fresh air is important. The rooms at the hospital are supplied with fireplaces which give forced ventilation. The roof of the building is available for patients at all times of the year.

HEART

The systolic murmur heard over the precordium which is described by many authors as a symptom of scarlet fever, may be readily prevented in most cases. It is due to one of, or a combination of, three causes, anemia, relative mitral insufficiency and endocarditis. The anemia may give a hemic murmur, or be a contributing factor in a relative insufficiency by throwing extra work on a heart muscle the tone of which has been diminished by the virus of the disease. If the hearts of the patients who are allowed to get out of bed the second and third weeks of the disease are watched, they will be seen in many cases to dilate slightly and a systolic murmur will appear at the apex. An active endocarditis, either simple or infective, may appear. This is more likely in cases which are very septic with high temperature.

It is the custom at this institution to give iron to all patients after the temperature has remained at normal for twenty-four hours. The preparations used are either ferrous carbonate powder in capsule five grains three times a day, or the following:

℞

Iron and potassium tartrate	1 part
Glycerin	2 parts
Water enough to make	12 parts

Mix. One teaspoonful in water three times a day.

Patients should be kept in bed until the twenty-fourth day of the disease, with one pillow until the eighteenth. It is desirable that the patient should attain the sitting position gradually. Two pillows may be allowed on the nineteenth day, three the twentieth and so on, five pillows being so arranged as to allow sitting up in bed. On the twenty-fourth day an hour in a chair beside the bed may be allowed. Progress from here on should also be gradual, permitting a little longer time up each day and a little more activity, the heart and pulse being carefully watched meanwhile as a guide to latitude in this direction. It is rare that digitalis is indicated. For routine use, as has been advised, it is surely too much of a kidney irritant.

During the early weeks of the disease the patient not only should be kept in bed but also should be kept quiet. This depends a great deal on the nursing. The allaying of discomfort and the prevention of consequent tossing and turning by sponge baths, by hot water bottles to cold feet, by frequent smoothing of a well-made bed and by the many things that comprise nursing comfort do much to conserve the heart. Insuring a proper amount of sleep in twenty-four hours is also important. The bowels should move freely daily, by catharsis if necessary. Fresh air should be provided in abundance. At the Hospital for Scarlet Fever a screen is placed between the window and the bed and the window always kept open. This with the open fireplace gives forced and adequate ventilation. At this hospital also convalescent patients are moved to a different floor in the building as soon as up and about. A recreation-room is provided with sound-proof doors separating it from the rest of the hospital.

If endocarditis either simple or infective occurs the period of rest is of necessity longer. Salicylates are of doubtful value in simple endocarditis. Vaccines and serums may be tried in the infective variety. Pericarditis either simple or purulent may occur. The treatment is the same as when coming in the course of any other acute infection. Myocarditis is rare. When it does exist the treatment is as elsewhere.

BLOOD

Just what blood condition we have to deal with in scarlet fever in the so called septic cases we shall probably know better when we know what the infective agent of scarlet fever is. That there is a specific virus apart from the streptococcus is suggested by the different courses of very serious cases when large doses of polyvalent streptococcus serum are injected. Some cases seem to show very marked improvement while others show no reaction whatever. This suggests that where there is streptococcus septicemia the serum in sufficient dosage is of value and that where the symptoms are due to another infective agent the serum is useless. At present we can say that the serum should be administered in all septic cases by someone experienced in its use.

STOMACH AND INTESTINES

Nausea and vomiting are very constant symptoms at the onset of scarlet fever. The nausea may be slight, the patient vomiting once or twice the first day with immediate relief. Or the nausea may be marked and the vomiting severe and prolonged. In the latter cases there is pain over the epigastrium and the area of the stomach. Hyperesthesia is very marked, sometimes so severe that the patient cannot bear the weight of the bedclothes. Bismuth subcarbonate in doses of 60 grains usually relieves these cases. If this fails 6 drops of 1 per cent solution of cocain in a wineglassful of water every fifteen minutes for four doses will help.

During the latter part of the fourth week and the fifth week heartburn is sometimes a very distressing symptom. This is relieved readily by milk of magnesia in teaspoonful doses. It is well to cut down the diet somewhat for a few days, particularly such food as may be taken after 6 p. m.

Constipation is the rule in scarlet fever though in some cases there is diarrhea at the onset. Our choice of a cathartic should be one which does not irritate the kidneys and one which does not reduce too much the bulk of the urine. A tea made of senna leaves fulfills these requirements and is very useful during the febrile period. Rhubarb, aloes and cascara sagrada are other anthracenes which may be used. Castor oil may be used alternately with one of the anthracenes. As a general thing salines are not desirable as they reduce too much the bulk of the urine. [illegible] xanthin group, the mercurials [illegible] rations of the anthracenes should [illegible] produce kidney irritation.

KIDNEY

The diet outlined above has been selected with the idea of keeping up the weight and strength of the patient with the smallest possible amount of kidney irritation The amount of fluid recommended is designed to keep the amount of urine between 70 and 80 ounces for twenty-four hours The specific gravity of the urine should be maintained below 1 010 There can be no doubt in the mind of anyone who has watched and examined the urine in a large number of scarlet fever cases in which all kinds of diet have been tried that a diet high in proteid, particularly a diet with eggs, during the first four weeks of scarlet fever is very dangerous The urine should be examined each day for albumin and casts Cream of tartar lemonade should be given to make the urine bland If with a sufficient amount of fluid taken by the patient the urine continues to be of a specific gravity of over 1 010 or of a small amount or both, the acetate, bicarbonate and citrate of potassium, 7½ grains of each, in water may be given every three or four hours Another procedure which may give warning of kidney insufficiency, even before urinary findings are significant, is the daily taking of blood-pressure

Many figures have been published as to the frequency of nephritis during scarlet fever One reason for the great variation in results may be due to the undoubtedly different character of different epidemics Another reason may be that different reporters have different things in mind when they speak of nephritis It is likely that there is cloudy swelling of the kidney in most cases of scarlet fever, while a nephritis that lasts for weeks or from which the patient does not recover is rare when proper precautions are taken When nephritis does occur treatment should be begun early, the accessory channels of elimination being made use of to relieve the kidneys, the urine made bland with saline diuretics and increased by forcing fluids, the diet restricted to milk

JOINTS

As the temperature falls it is a common thing for he patient to complain of transient pains and stiffness n the joints The small joints of the hands, shoulders nees and ankles are the joints most often affected and n this order Occasionally the pain is severe and there heat, redness and swelling Prevention of this condi-on is attempted by the use of outing flannel night othes the administration of alkalies and proper catharsis When it does occur a brisk saline purge should be given Alkalies should be administered until the urine is alkaline Salicylates may be given to allay pain Unlike rheumatism friction helps these joints and if the following lotion be rubbed into the joint well two or three times a day there will be considerable relief

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Olei gaultheriæ	1 part
Mentholis	50 parts
Petrolati liquidi	1 part

Rarely these joints will go on to suppuration Surgical procedure is then indicated

NERVES

The nervous symptoms follow roughly the height of the temperature as to their severity For the milder cases with slight nocturnal wandering, with bad dreams and night starts a warm sponge bath and 15 grains of the ammonium bromid are usually sufficient For the more severe delirium the patients are packed in blankets wrung out in hot water This may be supplemented by 5 grains of acetphenetidin with ½ grain of codein If a patient with a temperature of 106 F is packed for ten minutes in blankets wrung out in water 103 F his temperature will fall and his nervous symptoms be lessened The temperature of the disease never requires treatment

DIPHTHERIA

All patients with scarlet fever are kept in separate rooms They are given individual bed-pans, urinals, thermometers, atomizers, medicine-glasses, irrigating-bags, solution-basins, feeding-tubes, all of these being marked with the patients' room numbers A culture is taken from the throat of each scarlet fever patient on admission and again if a suspicious patch later appears in the throat If Klebs-Loffler bacilli are present, antitoxin is given and the patient is removed to an isolated part of the hospital

Foot of East Sixteenth Street

NEPHRITIS IN PREGNANCY*

JOSEPH B DeLEE, M D
CHICAGO

Internists distinguish the following principal forms of renal diseases acute nephritis and chronic nephritis Of the latter there are two grand divisions, the parenchymatous, with its three forms, large white kidney, large red kidney and the secondary contracted kidney, and the chronic interstitial or primary contracted kidney, which is accompanied by cardiac hypertrophy and general arteriosclerosis The accoucheur, in addition to these, must consider the kidney of pregnancy, its aggravated form, the so-called pregnancy nephritis, and the kidney changes which are a part of eclampsia Since even the internists are not in perfect accord regarding the classification of their physical findings, and admit that the various recognized varieties of disease may be associated or co-related, it is not to be expected that clinically the accoucheur will be able to identify absolutely the many conditions presented for treatment

Primary acute nephritis may develop during gestation from the same causes which operate outside of it, for example, exposure to cold, chemical poisons, ptomainemia, scarlatina, angina and septic affections Antecedent septic processes make the kidney more vulnerable, a tendency which is aggravated by pregnancy Acute nephritis cannot be clinically differentiated from the "pregnancy nephritis" which often leads to eclampsia That a previously healthy pregnant woman, after a severe angina or exposure to cold develops nephritis and convulsions is an observation I have made twice The discussion of such cases properly belongs to eclampsia, with which it is practically though not pathologically identical

Chronic nephritis may exist before pregnancy, the patient being hardly aware of the fact, until the strain thrown on the kidneys by advancing gestation brings the latent disease to the surface Again, repeated abortions in a woman cause an examination of the urine to be made, and a slumbering nephritis is discovered In other cases a known nephritic becomes pregnant In all these instances, the results are the same and may be considered under two headings, the effects of gestation on nephritis, and the influence of nephritis on the reproductive function

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty Third Annual Session held at Atlantic City June 1912

EFFECTS OF PREGNANCY ON NEPHRITIS

Chronic parenchymatous nephritis is always unfavorably affected by the advent of gestation, and an acute exacerbation is almost always observed. It begins to show in the early months, which is contrary to nephritis incidental to pregnancy, the concomitant of eclampsia. At first there are puffiness of the eyelids and of the ocular conjunctiva and general anasarca, which does not disappear in the recumbent position. The edema affects the legs, which may be elephantine in size and the vulva, which may be transfigured into two immense, white, translucent, watery glistening tumors. Hydroperitoneum, hydropleura and pulmonary edema may occur, pallor, and waxy, pasty skin, high pulse tension (even in this form) are also to be noted. Headache, neuralgias, epigastric pain, disorders of the special senses, especially amaurosis, nausea and vomiting are found, but not so marked or so commonly as in pre-eclamptic toxemia. Albuminuric retinitis is very serious and may leave permanent blindness. Convulsions occur, but in less than one-third of the cases. The urinary findings are similar to those of pre-eclamptic toxemic nephritis: albumin, hyaline, granular, cellular casts, renal epithelium, white and finally red blood corpuscles. Urea is diminished, the total solids reduced, the daily amount of urine much less than normal.

Labor has a noxious influence on the disease and often produces alarming symptoms: pulmonary edema, collapse, which may simulate pulmonary or cerebral embolism, also apoplexy and suppression of urine. Anemia is badly borne by nephritics. If anesthetics are given and if the labor is protracted and exhausting, extensive damage may be done to the kidneys.

The puerperal processes do not exert a good influence either; sepsis is more common and nephritics do not bear infection well. While the urine usually clears up rapidly after delivery, the restitution of the kidneys is never complete, permanent structural damage having been wrought, and the action of repeated pregnancies is so bad that death is hastened.

Chronic interstitial nephritis is more frequent than the parenchymatous and is characterized by polyuria of low specific gravity, with little urea and a small amount of albumin, few casts and these usually of the hyaline variety. It is accompanied by high arterial tension (200 to 240 mm.), thickening of the vessels and hypertrophy of the heart. The effects of this form usually appear later in the pregnancy, but the symptoms of uremia already mentioned occur with almost equal frequency, and, especially in the latter months the distinctions between the various forms of nephritis become blurred. Retinitis, apoplexy and heart collapse are more frequent with cirrhotic kidney, extensive edema and convulsions are less frequent. I have as yet seen no convulsions with this form of Bright's disease, but several cases of pure uremic coma.

EFFECTS OF NEPHRITIS ON GESTATION

All forms of nephritis have a very bad influence on the pregnancy, abortion and premature labor being common (66 per cent. Hofmeier), and Seitz found that only from 20 per cent. to 30 per cent. of the children survived. One of the causes of habitual death of the fetus, and abortion and premature labor is chronic nephritis.

Labor in nephritics is slow, the uterus is indolent, the edema of the vulva predisposes to perineal lacerations, and in one of my cases the edema of the pelvic structures prevented the head from engaging in the pelvis. Even after the delivery, which was very laborious, the cervix could not be drawn down to the vulva as usual because it was anchored up high by the infiltrated broad ligaments. Abruption of the placenta is not infrequent. Postpartum hemorrhage is common because of the atony of the uterus. Involution is slower.

Many of the children are born dead and more or less macerated. The death of the fetus is caused (1) by the hemorrhages, the white infarcts and the sclerosis of the blood-vessels of the placenta which cut off the fetal circulation and are frequently found (80 per cent.) (Simpson and Fehling called attention to these facts, and the French called the condition placenta albumenurique), (2) by the frequent abruption of the placenta in labor, (3) by the accumulation of toxins in the blood which alter the villi, making them unfit for the function of nourishing the child, or which change the deciduæ making their blood-vessels brittle and thrombotic and the placenta liable to separation (a degenerative endometritis), in the first instance death of the fetus occurs, in the latter hemorrhages into and separation of the decidua with abortion resulting, (4) by poisoning of the fetus by the toxins which pass over from the mother, (5) by interruption of the pregnancy by eclampsia.

The children of nephritics are usually puny and pale, they thrive poorly at first and may show albuminuria with casts. The infarcts and hemorrhages have so reduced the active area of the placenta that the fetus does not receive enough food — it starves *in utero*. The placenta may be edematous.

DIAGNOSIS

Nothing need be said here on the diagnosis. I would, however, express my own views on a few special matters. First, on the significance of albuminuria. Schroeder found albuminuria in 5 per cent. of pregnant women, Fisher in 25 per cent., Jaeger in 70 per cent., using the finest tests. The latter believed it to be due to the lordosis of pregnancy, on Jehle's theory. My experience is that renal albuminuria — by the coarser tests, hot and cold nitric acid — does not occur in healthy pregnant women. Whenever I have found it and proved its renal origin there have been other evidences of renal disease, and I always regard it with suspicion, and guide treatment accordingly. In all my cases the outcome has justified the course of procedure. Second, the tests of the efficiency of the kidneys, especially the phenolsulphonephthalein, have all been unsatisfactory indexes of renal functioning in the medical cases. In surgical kidney, pyelonephritis, etc., they may be of more value.

Low urea output is of relatively little importance, but if the amount excreted persists below 6 gm. daily, a careful search is to be made for evidences of renal involvement. In one case, I induced labor near term because of a persistently low urea output without albuminuria. In the next pregnancy, signs of a real nephritis appeared early, requiring the induction of abortion. It is usually impossible to differentiate the various forms of nephritis from each other during gestation because the urinary and clinical pictures are blurred, and it is not essential for treatment.

PROGNOSIS

Both mother and child are seriously jeopardized by chronic nephritis, the mortalities being about 30 and 70 per cent., respectively. Reserve must be exercised in promising a cure by the induction of abortion or premature labor because the condition may not be the simple kidney of pregnancy but a [illegible] nephritis [illegible] has been awakened into [illegible] nephritis are edema of the lungs, hydropericardium, hydropleura, enormous anasarca, retinitis, which may lead to permanent blindness, apoplexy, convulsions and acute heart collapse. A combination with heart disease is very fatal. Hyperemesis is also bad, and Basedow's disease takes on a foudroyant course.

TREATMENT

Women with chronic nephritis should not marry, and if married should not conceive. If a woman had eclampsia or symptoms of renal inefficiency in her first pregnancy, a second should not be allowed until all the evidences of renal disease have remained absent for at least a year. Should pregnancy occur with diseased kidneys, redoubled watchfulness is required.

One may divide the cases into two groups:

1. Nephritis is discovered after the twenty-eighth week of pregnancy.

While a cure cannot be affected during gestation, most authors advise tiding the patient along to term if possible, but to induce premature labor in the presence of threatening symptoms. The details of the medical treatment need not be gone into here. I wish only to express my disapproval of hot sweats and baths. Two cases of cardiac failure with death have changed my view of this procedure. Further, I never could convince myself that they ever do any good.

In eclampsia the imminence of convulsions or coma decides the question of the induction of labor, but in nephritis other dangers may indicate interference. Albuminuric retinitis is a positive indication for the immediate termination of gestation. Immense anasarca and a laboring heart which does not respond to treatment also are good reasons. Then the dangers which threaten the child must be considered — abruptio placentæ and hemorrhages into it — though to discover these accidents in time to save the infant is not always possible. For this reason and because our knowledge of nephritis is so uncertain and our reliance on treatment so insecure, I usually interrupt pregnancy as a matter of principle when the child has fully passed the period of viability. The exceptions of course are those cases in which very satisfactory improvement ensues under treatment. The usual methods of inducing labor are employed but in critical cases vaginal cesarean section may be indicated.

2. Nephritis is discovered before the child is viable.

Some authorities (Schroeder, Fehling, Billings, Tyson, Edwards, Schauta and others) recommend the induction of abortion, holding that the injury to the kidneys, which is inevitable before the child is viable and, too, the poor chances of the fetus anyway make the continuance of the pregnancy precarious and useless. With these opinions mine agrees, but if the woman is near the period of viability I try to tide her along for a few weeks, to give the child a better chance for its life. Of course the woman must stay in bed, on a milk and cereal diet, and a careful daily urinalysis must be made. In the early months, the pregnancy is interrupted on the first indication of renal trouble and, too, if the disease of the kidneys, while not retrogressing, remains stationary under treatment. My experience has shown that these patients always grow worse and require interference before viability of the child. It is, therefore, injudicious to wait, because the kidneys will suffer irreparable damage in the meantime, while also the child very frequently dies from the effects of placental infarcts, thus defeating the object of the expectancy.

During labor, nephritics require especial care. It is wise to watch the heart action closely and to be prepared for the same emergencies that occur with heart lesions. Sudden edema of the lungs, or attacks resembling cerebral embolism, may require rapid extraction. It may be necessary to puncture the swollen labia to allow delivery. Antiseptic douches may not be employed, bichlorid of mercury especially should be avoided. Ether is the anesthetic of choice, but as little of it as possible is to be used.

In the puerperium the usual treatment is kept up. Nursing is to be permitted only if the puerpera is in good condition and the renal symptoms are disappearing.

15 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. Henry Schwarz, St. Louis: Dr. DeLee has failed to differentiate between the cases of nephritis which have existed before pregnancy occurred and between those which originate during pregnancy. While I agree with him that the 'kidney of pregnancy" is never a normal condition, I insist that it is a condition peculiar to pregnant women, as has been pointed out by Leyden; it differs entirely from parenchymatous nephritis, because the kidney can return to a perfectly normal condition after pregnancy is terminated; the treatment called for by a "kidney of pregnancy" is altogether different from that which is indicated by true nephritis pre-existing to pregnancy or arising during its course. Dr. DeLee is right in stating that for cases of true kidney disease complicating pregnancy no hard and fast rule of treatment can be laid down; each case has to be sized up individually. As in the case of women with tuberculosis or heart disease, women with kidney disease had best *not* marry, and if they are married, should avoid becoming pregnant. If, however, such patients become pregnant, we watch them closely and do the best we can for them. I have never seen a case of pre-existing nephritis lead to true eclampsia; there may be convulsions in such cases, but these are of the uremic type. It is a different matter when kidney complications arise during pregnancy; at present, we are all trying to keep pregnant women under close observation in order to recognize the first symptoms of such complication. At the Washington University Dispensary we employ a so-called prenatal nurse, who visits prospective mothers at frequent intervals as soon as they have registered at the dispensary; the frequent examinations of the urine, along with the instruction which the nurse gives our patients, regarding the hygiene of pregnancy, enables us, I am quite sure, to prevent many of the so-called renal complications of pregnancy, and we do find that, whenever there is albumin in a urine which before was free from albumin, a strict regulation of diet and other measures will in most cases cause that urine to clear up.

Dr. J. B. DeLee, Chicago: Most of the books say that 3 to 5 per cent. of so-called healthy women in pregnancy have albuminuria. Fisher found 25 per cent., and during labor, 50 to 60 per cent. While not disputing this, I wish to state my own experience. A normal woman during pregnancy should not have albuminuria. The athlete after much exercise may develop albuminuria. Hyperlordosis is said to produce albuminuria. When a woman develops albuminuria, discovered by the ordinary tests, there has always been, in my experience, a pathologic foundation for it.

The Physician as a Business Man.—For attending a case of pneumonia, typhoid, appendicitis, childbirth, or plain imagination, a physician is entitled to reasonable compensation depending first on his personal valuation of his own services, secondly, on the time devoted to the effort, and finally, on the prevailing standard of fees in the community. The patient's prominence or wealth has little or nothing to do with the amount of the fee justly charged; it should not affect the doctor's fee any more than it should affect the price of an automobile or a pair of shoes. A doctor must be either a business man or a beggar.—*Delaware State Med. Jour.*

A PLEA FOR MORE CAREFUL TECHNIC IN DOING INTRAPELVIC RECONSTRUCTIVE WORK *

W FRANCIS B WAKEFIELD, M D
SAN FRANCISCO

One of the most valuable lessons that I have learned is that extensive adhesions can result from simple intrapelvic work without infection playing any recognized part Several times I have had to reopen the abdomen in patients on whom I had previously performed some simple operation, such as shortening the round ligaments, and have been amazed at the extent of the anatomic distortion found in the pelvis

Until comparatively recently, I failed to realize the extent to which peritoneal surfaces could glue themselves together through the agency of the serous exudation that follows such simple trauma as that produced by multiple needle and volsellum puncture The fact that simple serous exudation can terminate in vicious multiple adhesions is denied by some who believe infection to be the necessary causative factor in their production Those who defend this view have not given the subject sufficient experimental study Adhesions, indubitably, may follow infection, they do so, however, because of the serous exudate that is engendered Mechanical trauma, often of the simplest character, will produce the same fundamental conditions Correlation of facts, deduced from private work performed under ideal environment, as well as from animal experimentation, has clearly demonstrated to me that very consequential massing together of pelvic viscera can occur in non-infected cases along suture lines or wherever serous surfaces are punctured, lacerated or abraded If we accept this as a fact, we are then called on to alter some of our practices

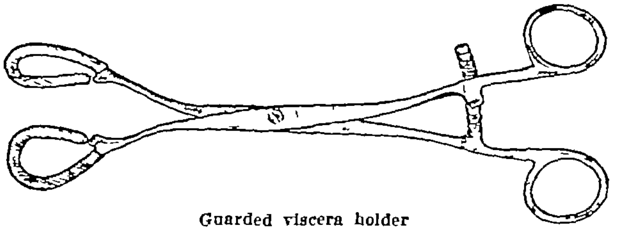
In much pelvic work where diseased structures have to be resected or removed, intrapelvic suturing and other mechanical trauma cannot be avoided The best that can be done in this class of work is to inflict the least possible amount of injury If intrapelvic structures are not roughly handled, if natural lines of cleavage are carefully followed, and if peritoneal planes are brought together with fine Lembert sutures so that all the raw edges are turned in, it is remarkable how much can be accomplished without material damage to the visceral surface of the pelvic peritoneum And the future functional condition and anatomic relation of the pelvic viscera will bear direct ratio to the extent of peritoneal injury exposed to visceral contact The opening in the parietal peritoneum should be closed by a running back and forth suture placed below the cut edges, so that they are turned outward

Operations performed for the removal of pathologic structures that menace life and health are vitally imperative, and whatever trauma is necessary is justified by the end attained In minimizing the amount of peritoneal injury the importance of deft and gentle manipulation of the pelvic viscera cannot be overestimated Sharp pointed instruments, which puncture and lacerate, should have no place in pelvic surgery They should be replaced by an altogether different type of instrument For instance, for general manipulation of the pelvic viscera, other than the uterus the safest and most efficient instrument is the ring sponge holder, with the blades protected by a piece of rubber tubing It can be used with impunity to handle the intestines, the fallopian tubes, the ligaments, or the peritoneal reflections It holds firmly but without damage For manipulation of the uterus, I had constructed for my own use, an instrument similar in principle, made to conform to the shape and size of that viscus [1]

Turning from what might be called essential operations, we come on a class of operations which are not necessary but expedient, and are designed to correct mechanical defects The best example of this type of operation is found in the surgical treatment of uncomplicated retroversion

These operations if done at all, should at least afford reasonable guarantee against postoperative consequences which may be more serious in their nature and effects than the original faulty dynamics And, let me state here, some of our intrapelvic methods for shortening the round ligaments may be followed by adhesions as extensive as I have ever seen subsequent to any operative procedure

To obviate the possibility of pernicious adhesions resulting from this class of work, it becomes almost imperative that in performing these operations we choose some method which will permit of the correction of the malposition without creating any intrapelvic injury This eliminates from consideration all those manifold procedures which shorten the round ligaments, or other ligamentary structures, intrapelvically There are many excellent ways of shortening the round ligaments extrapelvically I do not presume to suggest the exact method, that is a matter of individual choice I only urge that whatever method be adopted care be exercised to strip back the peritoneal reflections thoroughly on to the ligament, so that the patient will not subsequently suffer from the nerve-racking "dragging" sensation that is so often experienced when the peritoneum has been pulled up into the abdominal wall Further, I urge that the ligamentary loops be given secure anchorage and be smoothly disposed of beneath the aponeurosis of the external oblique


Guarded viscera holder

Some surgeons prefer not to open the pelvic cavity at all, others think wisely of combining intrapelvic inspection with extrapelvic operation The latter course seems preferable, provided we can refrain from being unduly meddlesome, we are inclined to be surgical vandals when we get inside the pelvis

The ovaries are the chief objects of attack The so-called cystic ovary has been the excuse for much surgical mutilation Retroversion of the uterus and cystic ovaries go hand in hand The impaired pelvic circulation produces chronic inflammatory conditions in the ovary which result in a limited number of small graafian follicle or corpus luteum retention cysts In the majority of instances they are not really pathologic Little if anything, is gained by resecting them Other retention cysts may form on the resected ovary, besides which

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty Third Annual Session held at Atlantic City June 1912

[1] Since writing this paper I learn that Schonenberg of Chicago has been using a uterine elevator similar to mine and I gladly accord him priority

we are likely to have adhesions form round and about the site of mechanical insult which will transform a free ovary to a fixed one With the pelvic organs restored to normal position, mechanotherapy may usually be relied on to enable the cystic ovary to take care of itself without surgical interference I was formerly a very enthusiastic advocate of ovarian resection After resecting about two hundred ovaries and carefully studying the results, I am forced to the conclusion that resection of an ovary is rarely advisable If an ovary is grossly pathologic remove it, if it is not grossly pathologic, leave it alone

Operations of expediency, then, should be so planned and so performed that the patients, many of whom are young girls, will not suffer any deleterious consequences therefrom They must be reconstructive not destructive, by means of them healthfulness must be engendered not endangered

1525 Sutter Street

ABSTRACT OF DISCUSSION

Dr Frank T Andrews, Chicago The things I do in the matter of preventing adhesions class themselves under several heads In the first place, prevention is what Dr Wakefield speaks of in the use of his new retractors as opposed to the forceps Then the repair of injuries done either instrumentally or otherwise in the handling of the peritoneum That repair may be, of course, either the closing of lacerated surfaces or punctured surfaces or the burying or concealing of such points Then again we have great planes of bleeding surfaces such as we get in digging out great pus tubes We do not wish exactly to repair these, we do not wish to sew them up These planes fall together and we use them because we want the adhesions We have certain adhesions which we wish to sew and we deliberately go to work to irritate the peritoneum because we have at times certain uses for these adhesions which produce adhesions of other organs

Dr T J Watkins Chicago I concur in all that Dr Wakefield has said and wish to call attention to two or three points One is to emphasize the importance of this paper One is to state that postoperative adhesions are usually more difficult to deal with than postinfective adhesions, which emphasizes the importance of using the greatest amount of care to avoid adhesions Another is the question of the relation of strangulated tissue to adhesions My associate Dr Curtis, did some experimental work on about 150 rabbits last year and made numerous observations regarding adhesions He found that long pedicles practically always produced bad adhesions When tissues were studied to note the effect of strangulation on adhesion formation the strangulated tissue was found to be the part that became the most firmly adherent Since then it has been our plan never to leave long pedicles and never to use a suture that leaves blanched tissue If the tissue becomes blanched we take out the suture and replace it or cut off the tissue whose circulation has been much affected

Dr W O Henry Omaha I think it wise to do the least possible damage to the abdominal and pelvic organs in operation In the second place we should cover up, as far as possible and as carefully as possible, all raw surfaces, and, in the third place I use freely the sterile olive oil which I have found to be very helpful in preventing adhesions

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Pulmonary Tuberculosis and Chronic Appendicitis—E Sergent calls attention to the frequent difficulty of a differential diagnosis between pulmonary tuberculosis and chronic appendicitis and cites the work of Taisans and Brunon of Rouen in this line His article is published in the *Presse Medicale Belge* 1912 lxiv 427 He maintains that chronic appendicitis often leads to conditions favoring the development of tuberculosis and that the overfeeding of tuberculous patients causes intestinal irritation that may bring on a chronic appendicitis or aggravate one already existing

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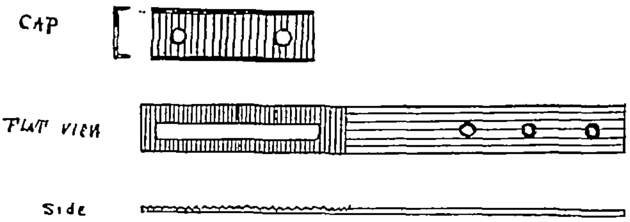
A NEW BONE PLATE

P T Geyerman, M D, Hot Springs, S Dak.

Surgeon to Our Lady of Lourdes Hospital

I trust that this modified plate will prove of undoubted value in certain cases It is simply a modification of the well known Lane bone plate and has all the good features of the Lane plate with a well merited improvement

In the experience of most surgeons who have made use of the Lane plate, there has been more or less difficulty in getting an exact approximation of the fractured ends and unless extreme care is exercised in placing the screws there is likely to be a small space intervening While this is not always objectionable yet at times it may determine the difference between union and non union This I have had quite clearly demonstrated to me in two cases during the past six months



A new bone plate

This plate differs from the Lane plate in that it is adjustable at one end, the upper surface of which is corrugated and has a slot in place of screw holes Over this end fits a cap in which are located the screw holes The under surface of the cap is also corrugated, in order to give a firm hold when the screws are tightened From this it can readily be seen that when the screws are driven nearly home the fractured ends may be tightly adjusted and the screws tightened

This plate has been used in fourteen cases and in none of these has there been any slipping

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SALVARSAN IN PREGNANCY

Harold J Levis, M D, Rochester N Y

It seems to me that the following case is of interest in showing the possibilities of salvarsan as an eradicator of hereditary syphilis, abortion and still birth

The patient, Mrs S, aged 30, married, has had two previous pregnancies, both children are healthy The patient's husband acquired syphilis *from an extramarital intercourse when she* was about four months pregnant He received two intravenous injections of salvarsan of 0 6 gm each After his second injection he informed me that his wife was showing marked symptoms of the disease I told him that it was his duty to have treated his wife first if not for her sake, for the sake of the unborn child He said that his family physician (a homeopath) had told her that an injection of salvarsan in her condition was not to be thought of Nevertheless, they talked it over and decided to consult another physician He argued strongly in favor of an injection

May 11, 1912 the patient presented herself and received 0 6 gm of salvarsan intravenously At that time she was about eight months pregnant Her condition was pitiable, both mentally and physically—mentally because of her diseased condition, for which she was not to blame Physically she presented a skin eruption, intense angina osteocopic pains and a persistent cephalalgia Her husband had to help her into the office Four days later she presented herself to report progress The transformation was truly marvelous She stepped into the office unassisted Her symptoms had completely disappeared

She received a second intravenous injection June 6, 1912, at 9 p m The next day at 5 45 and 6 a m twins were born, both healthy I examined them again on July 25 and at that time they showed none of the classical symptoms of hereditary syphilis

660 Lake Avenue.

DISAPPEARANCE OF ANGIONEUROTIC EDEMA AFTER APPENDECTOMY

C P Oberndorf, M D, New York

In connection with the issues raised by Wiel[1] in regard to angioneurotic edema namely, the symptomatic character of the affliction, the association of disturbances of the gastro intestinal tract and the consideration of surgical interference which demands the most delicate judgment the following case which I was able to observe very closely, is of interest

The patient, aged 37 has a negative family history with the exception of a slightly neurotic tendency in the mother He has never suffered from any other sickness with the exception of scarlet fever and chicken pox in early childhood Though physically of a hardy and strong development mentally his make up is high mettled, volatile and tense

Although from the age of 8 he had suffered intensely from chilblains, there were no other vasomotor disturbances until 1904 when, while working under some stress he suddenly developed a large circumscribed swelling on the lower lip Thereafter, at irregular intervals but practically always when the patient had been subjected to some emotional strain or unusual application to his work these suddenly appearing red, tense, fairly well circumscribed swellings reappeared, located most frequently on the extremities but also occasionally affecting the eyelids and lips While on the face the edema caused only an extremely annoying sensation of itching on the legs and forearm it produced severe pain

While the patient had never suffered from constipation, the attacks of edema yielded quite promptly to saline purgatives or castor oil followed by vigorous treatment with intestinal antiseptics, such as salol betanaphthol or resorcin in large doses

All the attacks were confined to the exterior of the body until September 1907, when a sharp pain in the right iliac fossa, with appreciable tenderness and rigidity of the right rectus muscle and a rise of temperature to 101 degrees strongly suggested an attack of appendicitis Dr J A. Hartwell who saw the patient in consultation at that time, was of the opinion that, while the attack had probably been one of appendicitis, an intestinal angioneurotic edema could not be excluded The patient was advised that a recurrence would probably occur but operation was deferred until a more pronounced attack indicating involvement of the appendix should be observed

Following this abdominal attack the course of the angioneurotic edema continued unaltered but there were no further indications of affection of the gastro intestinal tract until August, 1910, when the patient was suddenly seized with intense pain in the right iliac region with symptoms so typical of a severe appendicitis that an emergency operation was undertaken by Dr C W Du Bouchet at the American Hospital in Paris The laparotomy disclosed a perforating appendix with abscess formation and a localized peritonitis After a prolonged convalescence due to a fecal fistula the patient regained his normal excellent physical health

Curiously enough since this operation two years ago the attacks of angioneurotic edema have entirely disappeared though the emotional strains to which the patient has been subjected have not altered to any extent More remarkable than this is the disappearance of the chilblains which had caused the patient intense pain since childhood, so that he has discarded his woolen socks in winter for low cut shoes Moreover, the hair of the scalp which had been falling out in alarming quantities grew in with renewed vigor following the appendectomy It seems most certain that in this instance the angioneurotic edema was a symptom of a chronic intestinal toxic irritation and disappeared with the removal of the cause

I must confess however that for the past three years I have been treating a very intractable case of angioneurotic edema, of six years standing in a young woman of 28 in which I can find no evidence of intestinal irritation The attacks usually follow an emotional strain and seem after having been treated with the entire gamut of therapeutic agencies ever suggested to yield most rapidly to arsenic and pituitary extract each in small doses but the effect is very transient In this instance I am compelled for want of a more accurate determination, to consider the case one dependent on an unstable vasomotor system—undoubtedly an entirely unsatisfactory explanation of the phenomenon

240 West Seventy Fourth Street

Therapeutics

THE CARE OF INFANTS

(Continued from page 543)

NUTRITION

If the mother is ill or becomes ill the child must be artificially fed If the child loses weight or does not gain weight on the mother's milk, it must be artificially fed The child may hold its own weight while growing and yet be deficient in general nutrition In other words, it may be actually losing in strength and yet gaining in height It has been shown that young animals may continue to grow on insufficient nutriment, and the child may grow tall and yet lose its fat and have its organs deteriorate from improper nourishment

It is not sufficient to watch the child's weight, it is necessary to study carefully the mother's nutrition and add to her nourishment and to her periods of rest as seem indicated

If the child must be artificially fed, it is necessary for it to have protein, sugar, fat and lime, besides various other salts that are found in mother's milk

It has been shown by long-continued research at the Wisconsin Agricultural Experiment Station that different kinds of food given to animals for years do not alter the nutritive status much, provided the foods are sufficient In other words, the animal and the human being can use almost any kind of fat and almost any kind of protein for its recuperative and constructive processes It makes little difference of what molecular construction the fat or protein is It is broken down and resynthetized into what is needed for the particular structure This subject is being carefully studied in laboratories, and scientific findings will doubtless before long be presented

The laboratory that has recently furnished data concerning the breaking down and building up of food structures is that at Halle Germany Professor Abderhalden,[1] in this laboratory, has shown the ability of animal organisms to take dissociated nutrition elements as amino acids sugar fatty acids, glycerol and inorganic salts and build them up or synthetize them into products necessary for nutrition and growth In other words the animal may take complex foods, break them down into the above-named elements and build them up into what is required, or it may take the broken down products and assimilate them into what nutritives are required

The need of the body for sugar is recognized and the course from sugar and starch ingestion can be traced through the stage of glucose absorption to the liver, where glucose is changed into glycogen and stored as such to be again changed into glucose when leaving the liver by the blood in which, in the lungs changes seem to take place that cause some of the glucose to enter into a combination with lecithin and to circulate with the lymph It is then carried to the muscles where glycogen is again either analytically or synthetically formed and is utilized in producing muscular energy The sugar metabolism is therefore fairly well understood

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[1] Wiel Angioneurotic Edema The Journal A M A April 27 1912 p 1246.

[1] Abderhalden E Fütterungsversuche mit vollständig abgebauten Nahrungsstoffen Ztschr f physiol Chem 1912 lxxvii — Synthetic Food and Artificial Nutrition Editorial The Journal A M A May 4 1912 p 1376

Another necessary element of the food is fat, which is the most economical way of giving energy The only question to decide is the amount that the child needs or can digest Lime is another necessity It and fat are essential to the production of soaps in the intestines If there is too much fat or insufficient lime, fatty acids may be formed which irritate the intestines and may prevent normal saponification Certain kinds of diarrhea may be due to these fatty acids and are cured if the fat is removed or the lime increased or the diet changed to carbohydrate to buttermilk or to albumin

Each child should be individualized and the food prescribed be made to fit the child, the same as a prescription is written to fit the individual patient Stock proprietary mixtures are rarely advisable The points to consider in individualizing the child are its age and its weight relatively to what the weight of a child the same age ought to be

Dr D J Levy[2] gives some valuable suggestions and advice which have been corroborated by his own experience He offers as a rough working rule for the first six months of life to dilute the milk (not top milk) with an equal part of water and add 5 per cent sugar When the child is 6 to 9 months of age, two-thirds milk and one-third water are used with 5 per cent of sugar, and from 9 months on undiluted milk is used As to calories, he quotes Heubner and Rubner, that for the first three months 100 calories per kilogram (a little more than two pounds) of body-weight are needed, for the second three months, 99 calories per kilogram of body-weight, the third three months 80 calories per kilogram of body-weight, the fourth three months 70 calories per kilogram of body-weight The caloric value of a quart of milk (liter) is approximately 600 Levy states that the new born babe may be roughly estimated to weigh 3,000 gm or 3 kg, and that each normal child should gain 500 gm per month or half a kilogram A normal child at this rate should weigh at birth 3 kg, at 3 months 4 5 kg at 6 months at least 6 kg With the gradual increase in weight the food is gradually increased in quantity and hence in caloric value

The following represents the calories of food prepared as above suggested One pint of milk equals 300 calories Dilute this with a pint of water and add 5 per cent of sugar which equals 200 calories, and the mixture will represent 500 calories As the child becomes older, take two thirds quart of milk, which equals 400 calories, and dilute with one-third quart of water, with 5 per cent of sugar added (representing 200 calories), making the total represent 600 calories With these data the proper estimated nutriment can be arranged for each child

Levy also urges that Czerny's advice to give longer feeding intervals than generally allowed is valuable, even to five or six feedings in twenty-four hours He also advises that the child should not be fed at night, but should be given all the water that it will drink at night, if it needs anything

In the choice of sugars Levy believes maltose dextrin is the best Lactose may be used but is not quite so satisfactory as it may cause dyspepsia or constipation If it seems that the child needs more nutrition and yet it is not thought best to give a milk of less dilution, 10 gm (2½ ounces) of ordinary wheat flour may be added to the day's feeding, and Levy believes the weight will be increased and often a constipation be cured This flour diluent should be used after the third month only If constipation persists, he thinks an oatmeal water (one-half to 2 ounces to a quart of water) may be used as a diluent instead of plain water The bulk of the feeding, he thinks, should be less than a quart up to the fourth month, and no more than a quart from that time until the end of infancy, of course giving the child what extra water it requires

Levy believes that after the sixth month one feeding a day of a simple broth of chicken, mutton or beef is advisable, and he suggests even a little stewed simple fruit especially if the child is constipated He finds that with these broths there is less demand of the infant for a large bulk of milk, and the child is better nourished and has better digestion

He believes in simple instructions, and his first instructions to the nurse are to take a pint of milk and a pint of water, add 1½ ounces of maltose dextrin or milk-sugar divide into five feedings, and give every four hours

Dr T G Allen[3] well discusses standards of infant-feeding If a baby is uncomfortable and fretful immediately after feeding the probability is that there is likely to be something wrong with the quantity of the food, that it is either too much or too little If the discomfort occurs some time after a meal other causes being eliminated, the trouble is probably with the quality of the food A normal infant should fall asleep directly after eating As not sufficiently recognized, a baby cries most frequently because the food is insufficient or not satisfactory or because its digestion of it is at fault

A normal baby will have a homogeneous, mustard-colored stool, of not unpleasant odor, of salve-like consistence, and free from admixture with curds or mucus, and as above stated, a healthy baby will gain weight pretty regularly on an average of an ounce a day during the first three months From this time on the gain is not so rapid

Allen believes that the child should have more protein in proportion to its weight than the adult, because it not only has to repair the tissue waste, but also must have protein with which to build He has come to the conclusion, by careful studies, that the baby should have at least 4 per cent of protein represented by 2 or 3 ounces of mother's milk or 1 to 1½ ounces of good cow's milk in each twenty-four hours This he terms his "protein standard"

Heubner, as elsewhere referred to in this article, has shown that a normal baby requires 100 calories of energy for each kilogram (1,000 gm, about 2 pounds) of weight This means that the baby should have 45 calories of energy for each pound of its weight, every twenty-four hours, which Allen says is roughly represented by a level tablespoon of milk-sugar or 3 level teaspoons of cane-sugar, as the amount of energy required for each pound of baby This ratio is much larger than the ratio required for an adult A man of 150 pounds, at ordinary work, has been found to require 3,300 calories per day, while the 20-pound baby would require 900 calories As Allen states, the greater amount required by the child is probably because of its growth, its greater metabolic activity and its proportionally greater amount of surface for heat radiation

(To be continued)

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[2] Levy D J The Journal A M A June 22 1912 p 1927

[3] Allen T G The Journal A M A June 8 1912 p 1687

MEDICAL COLLEGES OF THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION

Below are given brief descriptions of the medical colleges in the United States [illegible] to teach medicine, several of which do not grant degrees. The name, address, year of organization [illegible] first class graduated are given in each instance. Unless otherwise stated [illegible] official reports have been received from [illegible] information regarding [illegible] entrance requirements [illegible] fees [illegible] graduates, names of dean and secretary [illegible] information regarding [illegible] as to whether the college is [illegible]. In a few instances [illegible] received the information [illegible] from [illegible] sources. Figures for graduates [illegible] July 31, 1911. Extracts of rules and the membership of the association of American Medical Colleges [illegible] ing the list of colleges. Figures showing population [illegible] United States Census Bureau returns for 1910.

ALABAMA

Alabama, population 2,1[illegible], has two medical colleges, the Medical Department of the University of Alabama and the Birmingham Medical College, located respectively in Mobile and Birmingham. The population of Mobile is 51,521 and of Birmingham 132,685.

Birmingham

Birmingham Medical College, Avenue F and Twentieth Street. Organized in 189[illegible]. The first class graduated in 189[illegible]. There are [illegible] professors and 1[illegible] assistants, total [illegible]. The course of [illegible]. The fees are $1[illegible] for each of the first three years and $12[illegible] for the fourth. The secretary is Dr. [illegible]. Total registration 1911-12, 1[illegible]; graduates [illegible]1. The nineteenth session begins Sept. [illegible], 1912, and ends May 1[illegible], 1913.

Mobile

University of Alabama, School of Medicine, St. Anthony and Lawrence Streets. Organized in 18[illegible] as the Medical College of Alabama. Classes were graduated in 18[illegible] and in all subsequent years except 18[illegible] to 18[illegible] inclusive. It was recognized as the Medical Department of the University of Alabama in 18[illegible]. [illegible] property was transferred to the University of Alabama in 1[illegible], when the present title was assumed. The faculty consists of [illegible] professors and [illegible] lecturers and assistants [illegible]. The course of study covers four years of [illegible] months each. The fees for each of the first three years are $1[illegible] [illegible]. The Dean is Dr. [illegible]. Total registration [illegible] 1911-12 was 1[illegible]; graduates [illegible]. The [illegible] session begins Sept. [illegible], 1912, and ends May [illegible], 1913.

ARKANSAS

Arkansas, population 1,57[illegible], has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 45,941.

University of Arkansas Medical Department, [illegible] and [illegible] Streets. Organized in 18[illegible] as the Medical Department of [illegible] University. [illegible] In 1911 the College of Physicians and Surgeons [illegible] and the name was changed as it now is [illegible] University of Arkansas. The first class graduated in 18[illegible]. The faculty [illegible] and [illegible] lecturers and assistants [illegible]. The course of study covers four years of [illegible] months each. The fees are $1[illegible] for each of the first three years and $[illegible] for the fourth year. The Dean is Dr. [illegible]. The registration [illegible] 1911-12 was 1[illegible]; graduates [illegible]. The [illegible] session begins Sept. 1[illegible], 1912, and ends May [illegible], 1913.

CALIFORNIA

California, population 2,377,5[illegible], has [illegible] medical colleges. [illegible] in San Francisco, a city of [illegible] inhabitants. These are Leland Stanford Junior University [illegible] of Medicine, the [illegible] Department of the University of California, [illegible] Medical College of the Pacific, and the College of Physicians and Surgeons. The College of Physicians and Surgeons and the [illegible] Eclectic Medical College and [illegible] Los Angeles [illegible] Department of the University of California are [illegible] Los Angeles, population [illegible]. The Oakland College of Medicine and Surgery is [illegible] Oakland [illegible]. The College of Medical Evangelists [illegible] at Loma Linda, a village of [illegible].

Loma Linda

College of Medical Evangelists [illegible]

Los Angeles

College of Physicians and Surgeons [illegible]

[illegible] Los Angeles [illegible] The Dean [illegible] 1911-12 [illegible] ends May [illegible], 1913.

[illegible] Los Angeles [illegible] The Dean is Dr. [illegible] 1911-12 [illegible] ends May [illegible], 1913.

Oakland

Oakland College of Medicine and Surgery, [illegible] and [illegible] Streets. Organized in 1[illegible]. The first class graduated in 1[illegible]. The faculty numbers [illegible] [illegible] The Dean is Dr. [illegible] [illegible] ends May [illegible].

San Francisco

[illegible] Medical College [illegible] San Francisco [illegible] The Dean is Dr. [illegible]

San Francisco-Palo Alto

[illegible]

San Francisco-Berkeley-Los Angeles

[illegible]

Francisco The faculty is composed of 58 professors and 75 associates and assistants a total of 133 The course covers four years of nine months each The fees are Matriculation $5, fees for the four years respectively are approximately $200 $195 $190 and $165 The Dean at San Francisco is Dr Herbert C Moffitt at Los Angeles Dr W Jarvis Barlow Total registration of the two schools for 1911 12 was 88 graduates 27 The fortieth session at San Francisco begins Aug 8 1912 and ends May 10 1913 The next session at Los Angeles begins Sept 16 1912 and ends June 20 1913

COLORADO

Colorado, with a population of 799,024, has one medical college the University of Colorado, School of Medicine The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years are given in Denver, which has a population of 213,381

Boulder-Denver

University of Colorado School of Medicine—Organized in 1883 Classes were graduated in 1885 and in all subsequent years except 1898 and 1899 Denver and Gross College of Medicine was merged Jan 1 1911 when the legal right to teach the last two or clinical years in Denver was secured The faculty embraces 60 professors and 13 lecturers and assistants a total of 73 The work embraces a graded course of four years of nine months each The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university The tuition is $75 per year there are no other fees The Dean is Dr William P Harlow The total registration for 1911 12 was 118 graduates 39 The thirty first session begins Sept 9 1912 and ends June 5 1913

CONNECTICUT

Connecticut, with a population of 1,114,756, has one medical college, located in New Haven population 133,605

New Haven

Yale Medical School York and Chapel Streets—This is the Department of Medicine of Yale University In 1810 a charter was granted for the establishment of this school, and in 1813 it was organized as the Medical Institution of Yale College The first class graduated in 1814 The faculty consists of 16 professors and 54 lecturers and assistants a total of 70 The requirement for admission is two full years of collegiate work plus evidence of satisfactory preparation in physics general inorganic chemistry and general biology The course covers four years of nine months each The fees for the four years respectively are approximately $220 $168 $150 and $163 The Dean is Dr George Blumer The total registration for 1911 12 was 63 graduates 29 The 100th session begins Sept 26 1912, and ends June 18 1913

DISTRICT OF COLUMBIA

Washington population 331,069, has three medical colleges, George Washington University Department of Medicine Georgetown University School of Medicine and Howard University School of Medicine

Washington

George Washington University Department of Medicine 1325 H Street N W—Organized in 1825 as the National Medical College Medical Department of Columbian College Classes were graduated in 1826 and in all subsequent years except 1834 to 1838 and 1861 to 1863 inclusive. The original title was changed to Medical Department of Columbian University in 1873 In 1904 by an act of Congress it received its present title The faculty is composed of 30 professors and 45 instructors demonstrators and assistants a total of 75 The course covers four years of thirty two weeks each The total fees are $150 per year The Dean is Dr William C Borden The total registration for 1911 12 was 92 graduates 37 The ninety first session begins Sept. 25 1912 and ends June 11 1913

Georgetown University School of Medicine 920 H Street N W—Organized in 1851 The first class graduated in 1852 The faculty contains 19 professors 43 instructors and assistants total 62 *The course of study covers four terms of eight and one-half* months each The fees for the first year are $165 and for each of the other three years $150 The Dean is Dr George M Kober The registration for 1911 12 was 155 graduates 23 The sixty second session begins Sept 27 1912 and ends June 13 1913

Howard University School of Medicine Fifth and W Streets N W—Chartered in 1867 Organized in 1869 The first class graduated in 1871 Colored students compose a majority of those in attendance The faculty comprises 14 professors and 28 lecturers and assistants 42 in all *The admission requirements are one year* of collegiate work including physics chemistry botany and zoology and a reading knowledge of one modern language besides English The course covers four years of thirty weeks each The fees of each of the four sessions respectively are $107 $102 $102 and $100 The Dean is Dr Edward A Balloch Registration for 1911 12 was 170 graduates 36 The forty fifth session begins Sept 25 1912 and ends June 4 1913

GEORGIA

Georgia population 2,609,121, has five medical colleges Medical College of Georgia located in Augusta population 41,040 Atlanta College of Physicians and Surgeons Atlanta School of Medicine the Georgia College of Eclectic Medicine and Surgery and the Southern College of Medicine and Surgery are in Atlanta a city of 154,839 population.

Atlanta

Atlanta College of Physicians and Surgeons, Butler and Armstrong Streets—Organized in 1898 by union of the Atlanta Medical College organized in 1855 and Southern Medical College organized in 1878 The first class graduated in 1899 It has a faculty of 23 professors and 32 assistants a total of 55 The course of study covers four years of thirty weeks each Fees $125 each year The Dean is Dr W S Elkin 29 Luckie Street Total registration of students for 1911 12 was 372 graduates 61 The fifteenth session begins Sept. 18 1912 and ends May 7 1913

Atlanta School of Medicine, Luckie Barton and Cain Streets—Organized in September 1905 The first class graduated in 1906 The course covers four years of seven months each It has a *faculty of 14 professors and 28 lecturers and assistants a total of* 42 The fees each year are $105 graduation fee $30 The Dean is Dr George H Noble The total registration for 1911 12 was 233 graduates 45 The seventh session begins Sept. 20 1912, and ends May 1, 1913

Georgia College of Eclectic Medicine and Surgery, Tanner Street near Edgewood Avenue—Organized in 1877 as the Georgia Eclectic Medical College In 1884 it acquired the charter of the College of American Medicine and Surgery It assumed its present name in 1886 The first class graduated in 1878 The faculty consists of 13 professors and 6 assistants a total of 19 Tuition is $80 per year graduation fee $25 The Proctor is Dr E B Thomas Total registration for 1911 12 was 70 graduates, 39 The next session begins Sept 20 1912 and ends April 13, 1913

Southern College of Medicine and Surgery, McDaniel Street—Organized in 1911 The faculty numbers 13 Total registration for 1911 12 was 20 graduates 11 The Dean is Dr E O Stuckey *Reported not in good standing by the Georgia Board of Medical Examiners*

Augusta

University of Georgia College of Medicine Sixth and Telfair Streets.—Organized in 1828 as the Medical Academy of Georgia the name being changed to the Medical College of Georgia in 1829 Since 1873 it has been known as the Medical Department of the University of Georgia Entire property transferred to the University in 1911 Classes were graduated in 1833 and in all subsequent years, except 1862 and 1863 The faculty includes 23 professors and 34 assistants 57 in all The course is four years of eight months each Fees for each of the four years are $100 graduation fee $25 The Dean is Dr W H Doughty Jr The total registra*tion for 1911 12 was 126 graduates 38 The nineteenth session* begins Sept 18 1912 and ends May 20 1913

ILLINOIS

Illinois, population 5,638,591, has eight medical colleges, one of which is a night school, all located in Chicago, a city of 2,185,283 inhabitants, and are as follows Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College Bennett Medical College, Hering Medical College, Jenner Medical College and Chicago College of Medicine and Surgery

Chicago

Rush Medical College—This school was founded in 1837 organized in 1843 was the medical department of Lake Forest University from 1887 until 1898 when it became affiliated with the University of Chicago The first class graduated in 1844 The faculty is composed of 97 professors 149 associates, instructors etc a total of 246 The requirements for admission are two years of college work including courses in college chemistry physics and biology and a reading knowledge of German or French The course covers four years of eight and a half months each An optional fifth year consisting of a hospital internship or of a fellowship in one of the departments is offered All freshmen and sophomore studies are given at the University of Chicago The last two years are given in the clinical building at the corner of Wood and Harrison Streets The total fees are $180 each year A matriculation fee of $5 is paid but once and there are incidentals amounting from $2 to $5 annually The Dean is Dr John M Dodson Total registration 1911 12 was 559 graduates 112 The seventieth session begins Oct 1 1912 and ends June 14 1913

Northwestern University Medical School Dearborn Street between Twenty Fourth and Twenty Fifth Streets—Organized in 1859 as the Medical Department of Lind University In 1864 it became independent as the Chicago Medical College It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891 when the present name was taken The faculty comprises 56 professors and 91 lecturers and assistants a total of 147 The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus two years of college work including courses in physics chemistry biology and modern languages The course covers four years of eight months each The fees for the four years respectively are $200 $200 $191 and $185 The Dean is Dr Arthur R Edwards The total registration for 1911 12 was 250 graduates 80 The fifty third session begins Oct 1 1912 and ends June 11 1913

College of Physicians and Surgeons Honore and Congress Streets—Organized in 1882 as the College of Physicians and Surgeons The first class graduated in 1883 It became the Medical Department of the University of Illinois by affiliation in 1896 and an integral part in 1910 when it took the name of University of Illinois College of Medicine The relationship with the university was canceled in 1912 and the former name was resumed The American Medical Missionary College was absorbed in 1910 The faculty is composed of 44 professors 84 assistants and instructors a total of 128 The fees are $155 each for the first two years $150 for the third and $160 for the fourth year The Dean is Dr William E Quine Total registration for 1911 12 was 506 graduates 145 The thirty first session begins Oct. 1 1912 and ends June 6 1913

Chicago College of Medicine and Surgery 706 South Lincoln Street—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College) The latter part of the name was dropped in 1902 and it became the Medical Department of Valparaiso University Eclecticism was dropped in 1905 The name was changed to the above in 1907 The course covers four years of eight months each The faculty consists of 41 professors and 83 lecturers and assistants a total of 124 The total fees of each of the four years respectively are $120 $120 $105 and $120 The Registrar is Dr G E Wyneken The total registration for 1911 12 was 556 graduates 126 The twelfth session begins Sept. 24 1912 and ends May 10 1913

Hahnemann Medical College and Hospital of Chicago 2811 Cottage Grove Avenue—Organized in 1859 The first class was graduated in 1861 The faculty includes 31 professors and 45 lecturers assistants etc a total of 76 The course extends over four years of eight months each The tuition fees for the four years respectively are $125 $125 $155 and $175 The Registrar is Dr W Henry Wilson The total registration for 1911 12 was 104 graduates 33 The fifty third session begins Sept 25 1912 and ends May 23 1913

Hering Medical College Homeopathic 703 South Wood Street—Organized in 1892 The first class graduated in 1893 The faculty consists of 28 professors and 25 assistants instructors etc a total of 53 The tuition fees for each of the four years respectively are $115 $105 $110 and $100 The Registrar is Dr E B Beckwith The total registration for 1911 12 was 28 graduates 7 The next session begins Sept 24 1912 and ends June 5 1913 *Reported not in good standing by the Illinois State Board of Health*

Bennett Medical College Fulton and Ada Streets Medical Department of Loyola University—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery Dropped Eclecticism in 1909 In 1910 it united with the Illinois Medical College and became by affiliation the Medical Department of Loyola University The first class graduated in 1870 The faculty numbers 93 The course covers four years of thirty four weeks each The fees for the four years respectively are $135 $130 $125 and $130 The Dean is Dr William F Waugh The total registration for the two colleges in 1911 12 was 402 graduates 93 The next session begins Oct 1, 1912 and ends June 13 1913

Jenner Medical College an afternoon and night school located at 223 West Washington Street—Organized in 1892 Classes were graduated in 1896 and in all subsequent years The faculty numbers 48 The Secretary is Dr John D MacKellar Total registration for 1911 12 was 138 graduates 12 The next session begins Sept 3 1912 and ends June 14 1913

INDIANA

Indiana, population 2,700,876, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 233,650 people, except that the work of the first year is offered also at Bloomington, the seat of the University

Bloomington and Indianapolis

Indiana University School of Medicine—Organized in 1903 medical course until 1905 In 1907, by union with the State College of Physicians and Surgeons the complete course in medicine was offered In 1908 the Indiana Medical College, which was formed in 1907 by the merger of the Medical College of Indiana (organized in 1869) and the Fort Wayne College of Medicine (organized in 1879) merged into it The faculty consists of 93 professors and 80 lecturers associates and assistants, a total of 173 Two years of collegiate work are required for admission The work of the first year is emphasized only at Bloomington The work of the other three years is all at Indianapolis A fifth optional year leading to the M D *cum laude'* has been added The Secretary at Bloomington is Dr B D Myers the Dean is Dr Charles P Emerson Indianapolis The total registration for 1911 12 was 155 graduates 45 The next session begins Sept 24 1912 and ends June 8 1913

IOWA

Iowa, population 2,224,771, has two medical colleges The College of Medicine of the State University of Iowa, located in Iowa City, population 10,091 In Des Moines, population 86 368, is the College of Medicine of Drake University

Des Moines

Drake University College of Medicine—First two years given on the University Campus University Avenue between Twenty Fifth and Twenty Eighth Streets the clinical years at Fourth and Center Streets Organized in 1881 as the Iowa Eclectic Medical College In 1883 the name was changed to the Iowa Medical College Eclectic In 1887 it resumed its former name merged into the Iowa College of Physicians and Surgeons and became the Medical Department of Drake University In 1903 it took its present title The first class graduated in 1882 The faculty consists of 20 professors and 33 assistants lecturers etc a total of 53 Two years of collegiate work, including courses in physics chemistry and biology are required for admission The work covers four years of nine months each The total fees are $165 each year The Dean is Dr William Wilson Pearson The total registration for 1911 12 was 50 graduates 16 The thirtieth session begins Sept 18 1912 and ends June 11 1913

Iowa City

State University of Iowa College of Medicine University Campus—Organized in 1869 First session began in 1870 First class graduated in 1871 The faculty is made up of 21 professors 22 lecturers demonstrators and assistants a total of 43 Two years of collegiate work including courses in physics chemistry and biology are required for admission The course of study covers four years of thirty six weeks each Total fees for each year are $50 plus a matriculation fee of $10 paid but once and a graduation fee of $10 The Dean is Dr James R Guthrie Dubuque Total number of students registered for 1911 12 was 110 graduates, 31 The forty third session begins Sept 16 1912 and ends June 13 1913

KANSAS

Population 1 690 949 has two medical colleges Kansas Medical College is in Topeka population 43 684 The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915 and the last two years in Rosedale a suburb of the two Kansas Cities which together have a population of 330 662

Lawrence and Rosedale

University of Kansas School of Medicine—Organized in 1880 In 1905 it merged with the Kansas City (Mo) Medical College founded in 1869 the College of Physicians and Surgeons founded in 1894 and the Medico Chirurgical College founded in 1897 The faculty including lecturers and clinical assistants, numbers 56 The requirements for admission are two years of collegiate work The course covers four years of nine months each The total fees are for the first two years $60 per year (and for non residents of the state $80) for the last two years $100 and $110 respectively The Dean is Dr S J Crumbine Topeka Associate Dean, Dr M T Sudler The total registration for 1911 12 was 75 graduates 14 The thirty third session begins Sept 18, 1912 and ends June 11 1913

Topeka

Kansas Medical College 521 Quincy Street—Organized in 1890 The first class graduated in 1892 It has been the Medical Department of Washburn College since 1903 It has a faculty of 32 professors and 9 lecturers and assistants a total of 41 One year of collegiate work is required for admission The course covers four years of nine months each Fees $100 yearly Matriculation fee of $5 paid but once The Dean is Dr William E McVey Total registration for 1911 12 was 37 graduates 9 The twenty third session begins Sept 11 1912 and ends June 5 1913

KENTUCKY

Kentucky, population 2 289,905, has one medical college the University of Louisville Medical Department, situated in Louisville, a city of 223,928 inhabitants

Louisville

University of Louisville Medical Department Eighth and Chestnut Streets—Organized in 1837 as the Louisville Medical Institute The first class graduated in 1838 and a class graduated in each subsequent year except 1863 In 1846 the present name was assumed In 1907 it absorbed the Kentucky University Medical Department In 1908 it absorbed the Louisville Medical College the hospital College of Medicine and the Kentucky School of Medicine It has a faculty of 35 professors and 38 lecturers and assistants a total of 73 The course covers four years of thirty two weeks each The fees are $135 each year graduation fee $25 The Dean is Dr W Edward Grant. The total registration for 1911 12 was 353 graduates 110 The next session begins Oct 1 1912 and ends May 30 1913

LOUISIANA

Louisiana, having a population of 1,656 388, contains one medical college the Medical Department of the Tulane University of Louisiana, situated in New Orleans a city of 339 075

New Orleans

Medical Department of the Tulane University of Louisiana University Campus and 1551 Canal Street—Organized in 1834 as the Medical College of Louisiana Classes were graduated in 1835 and in all subsequent years except 1863 65 inclusive It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884 The faculty numbers 96 The course covers four years of thirty two weeks each One year of collegiate work is required for admission Total fees are $180 per year graduation fee $30 The Dean is Dr Isadore Dyer The total registration for 1911 12 was 321 graduates 104 The seventy ninth session begins Sept 30 1912 and ends June 4 1913

MAINE

Maine, population 742 371 has one medical college located in Brunswick and Portland the latter having a population of 58 571

Brunswick-Portland

Medical School of Maine The medical department of Bowdoin College The first two years are given at Bowdoin College Brunswick the last two at Portland building located on Chadwick Street—Organized in 1820 The first class graduated in 1820 The faculty numbers 60 The course covers four years of eight months each The total fees are $120 for the first year and $110 for each of the other three years The Dean is Dr Addison S Thayer 10 Deering Street Portland The total number of students in 1911 12 was 83 graduates 11 The ninety second session begins Oct 17 1912 and ends June 27 1913

MARYLAND

Maryland with a population of 1 295 346 contains five medical colleges all located in Baltimore a city with 558 485 inhabitants They are as follows Johns Hopkins University Medical Department School of Medicine of the University of Maryland College of Physicians and Surgeons Baltimore Medical College and Maryland Medical College

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets —Organized in 1893 The first class graduated in 1897 The faculty consists of 39 professors and 79 clinical *professors etc a total of 118* The *requirements for admission* demand that the applicant either has (a) completed the chemical biologic course which leads to the A.B degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French and German physics chemistry and biology such as may be obtained from a year s course The course extends over four years of eight and one-half months each The charge for tuition is $200 per annum The Dean is Dr J Whitridge Williams Total registration for 1911 12 was 357 graduates 85 The twentieth session begins Oct 1 1912 and ends June 10 1913

College of Physicians and Surgeons Calvert and Saratoga Streets—Organized in 1872 The first class graduated in 1873 In 1878 it united with Washington University School of Medicine The *faculty* numbers 66 The work covers four years of eight months each Total fees are $165 for each of the first three years and $195 for the fourth year The Dean is Dr William F Lockwood The total number of students registered in 1911 12 was 321 graduates 63 The forty first session begins Oct 1 1912 and ends June 5 1913

University of Maryland School of Medicine, Lombard and Greene Streets —Organized in 1807 as the College of Medicine of Maryland The first class graduated in 1810 In 1812 it became the University of Maryland School of Medicine The faculty numbers 62 The course covers four years of eight months each The total fees are $155 each year graduation fee $30 The Dean is Dr R Dorsey Coale The total number of students registered in 1911 12 was 319 graduates 75 The 106th session begins Oct 1 1912 and ends June 1 1913

Baltimore Medical College, Madison Street and Linden Avenue —Organized in 1881 The first class graduated in 1882 The faculty numbers 77 The course covers four years of eight months each Total fees for the first three years are $150 per year for the fourth year $180 The Dean is Dr David Streett. The total number of students registered in 1911 12 was 199 graduates 26 The thirty first session begins Sept 20 1912 and ends June 1 1913

Maryland Medical College 1114 West Baltimore Street —Organized in 1898 The first class graduated in 1899 The faculty numbers 89 The course covers four years of eight months each Total fees for the four years respectively are $111 $111 $105 and $135 The Dean is Dr W S Smith The total registration for 1911 12 was 182 graduates 82 The next session begins Oct. 1 1912 and ends June 1 1913

MASSACHUSETTS

Massachusetts population 3,366 416, has four medical colleges Medical School of Harvard University, Boston University School of Medicine College of Physicians and Surgeons and Tufts College Medical School They are all situated in Boston a city of 670,585

Boston

Medical School of Harvard University Longwood Ave —Organized in 1782 The first class graduated in 1788 It has a faculty of 49 professors and 144 associates assistants etc. a total of 193 Candidates for admission must present a degree in arts literature, philosophy or science from a recognized college or scientific school with the exception of such persons as may be admitted by special vote of the faculty The session is four years of nine months each The total fees for each of the first two years respectively are $234 and $208 for each of the last two years $200 The Dean is Dr Edward H Bradford The total registration for 1911 12 was 258 graduates 61 The 131st session begins Sept 23 1912 and ends June 19 1913

Boston University School of Medicine 80 East Concord Street —Organized in 1873 In 1874 the New England Female Medical College founded in 1848 was merged into it The first class graduated in 1874 The faculty includes 25 professors 49 associates etc a total of 74 The course covers four years of eight months each Total fees for the first second and third years $127 each and for the last year $155 The Dean is Dr John P Sutherland 295 Commonwealth Avenue Total registration for 1911 12 was 94 graduates 18 The fortieth session begins Oct 3 1912 and ends June 4 191

Tufts College Medical School 416 Huntington Avenue —Organized in 1893 as the Medical Department of Tufts College The first class graduated in 1894 It has a faculty of 32 professors and 85 assistants lecturers etc a total of 117 The course covers four years of eight months each The total fees are $155 each year The Secretary is Dr Frederic M Briggs 416 Huntington Avenue Total registration for 1911 12 was 329 graduates 91 The nineteenth session begins Sept 25 1912 and ends June 1 1913

College of Physicians and Surgeons 517 Shawmut Avenue —Organized in 1880 The first class graduated in 1882 The college announcement gives the names of 226 matriculants and applicants for the session of 1910 11 which included both dental and medical students. The names of some of the students who graduated in 1910 appear in the announcements of this school from six to nine years The Dean is Dr Thomas D Crothers Total registration for 1911 12 was 89 graduates 20 The next session begins Sept 18 1912 and ends June 11 1913 *The college is not recognized by the Massachusetts Medical Society*

MICHIGAN

Michigan population 2 810 173 has three medical colleges Two of these the University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan are located at Ann Arbor a city of 14 817 people The Detroit College of Medicine is located at Detroit, a city of 465,766 inhabitants

Ann Arbor

University of Michigan Department of Medicine and Surgery —Organized in 1850 The first class graduated in 1851 It has a faculty composed of 18 professors and 66 associates instructors etc a total of 84 The entrance requirements are two years of college work including courses in chemistry physics and biology with laboratory work and a reading knowledge of one modern language The curriculum embraces four years of nine months each The total fees for Michigan students for the entire course of four years is $250 and for others about $400 The Dean is Dr Victor C Vaughan The total registration for 1911 12 was 242 graduates 82 The sixty third session begins Oct 1, 1912 and ends June 26 1913

University of Michigan Homeopathic College —Organized in 1875 The first class graduated in 1877 Although the work of the first two years is taken in the same classes with the Department of Medicine and Surgery of the University of Michigan nevertheless the entrance requirements have been kept at only a high school education a difference of two years collegiate work ' The difference will continue to be one year s work since it is announced that hereafter one year of collegiate work will be required for admission. The Dean is Dr W B Hinsdale The total registration for 1911 12 was 91 graduates 24 The next session begins Oct 1, 1912, and ends June 26 1913

Detroit

Detroit College of Medicine, St Antoine, Catherine and Mullett Streets and Gratiot Avenue —Organized in 1885 by consolidation of Detroit Medical College, organized in 1868 and the Michigan College of Medicine organized in 1880 The first class graduated in 1886 The *faculty embraces* 22 *professors* 102 lecturers instructors etc a total of 124 The course covers four years of eight months each The Registrar is Dr F B Walker The total registration for 1911 12 was 172 graduates 38 The twenty-eighth session begins Sept 10 1912 and ends May 29, 1913

MINNESOTA

Minnesota, population 2,075,708, contains one medical college the College of Medicine and Surgery of the University of Minnesota, situated in Minneapolis Minneapolis and St Paul are practically one city, and have a combined population of 516,162

Minneapolis

University of Minnesota College of Medicine and Surgery —Organized in 1883 reorganized in 1888 by absorption of St Paul Medical College and Minnesota Hospital Medical College The first class graduated in 1889 In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883 was merged In 1909 the *Homeopathic College of* Medicine and Surgery was merged The faculty includes 67 professors and clinical professors and 90 associate professors assistants etc. a total of 157 The curriculum covers five years of nine months each including a year s internship in a hospital The entrance requirements are two years of university work which must include one year each of physics general chemistry qualitative analysis zoology or botany and German or French all in addition to a four year high school course including two years of Latin Students entering hereafter will be required to secure a degree of B S or A B before the M D is granted Total fees for the first and second years are $150 each and for the third and fourth years $100 each microscopic rental $1 to $4 per annum The Dean is Dr F F Wesbrook The total registration for 1911 12 was 183 graduates 37 The twenty fifth session begins Sept 20 1912 and ends June 14 1913

MISSISSIPPI

Mississippi, population 1,797,114, has one medical college the Medical Department of the University of Mississippi, which gives only the first two years of the medical course It is located at Oxford, a city of 1,825 inhabitants

Oxford

University of Mississippi Medical Department —Organized in 1903 Gives only the first two years of the medical course The session extends over eight and a half months The faculty numbers 14 The Dean is Dr W S Leathers The total registration for 1911 12 was 44 The tenth session begins Sept. 19 1912 and ends June 3 1913

MISSOURI

Missouri, population 3,293,335, has nine medical colleges St Louis population 687,029, contains five of these, viz, the School of Medicine of St Louis University, Washington University Medical Department St Louis College of Physicians and Surgeons and the American Medical College Kansas City, which with Kansas City, Kan, has a total population of 330,662, has three colleges, namely the University Medical College the Kansas City Hahnemann Medical College and the Eclectic Medical University Ensworth Medical College is located in St Joseph, population 77,403 The Department of Medicine of the University of Missouri is at Columbia, a town of 9,662 people

Columbia

University of Missouri School of Medicine—Organized at St Louis in 1845 was discontinued in 1859 but was reorganized at Columbia in 1872 Teaching of the clinical years was suspended in 1909 The faculty includes 11 professors and 5 assistant professors lecturers etc. a total of 16 The course covers two years of nine months each. The entrance requirements are two years of college work, including English, 5 hours German 5 hours general zoology 5 hours physics 5 hours inorganic chemistry, 5 hours elective 35 hours Equivalent work in foreign language may be substituted for the English and German Total fees are $70 each year The Dean is Dr C M Jackson Total registration of students for 1911 12 was 36 The next session begins Sept 19, 1912 and ends June 11, 1913

Kansas City

UNIVERSITY MEDICAL COLLEGE, Corner Tenth and Campbell Streets —Organized 1881 as University of Kansas City Medical Department First class graduated 1882 Reorganized 1888 under present name In 1911 it discontinued the courses of the first two years The Dean is Dr S Grover Burnett The total registration for 1911 12 was 70 graduates 27 The next session begins Sept 9 1912 and ends June 9 1913

KANSAS CITY HAHNEMANN MEDICAL COLLEGE 1020 East Tenth Street —Organized in 1888 as the Kansas City Homeopathic Medical College The first class graduated in 1889 In 1902 it united with the Hahnemann Medical College of the Kansas City University taking the present title The Dean is Dr Moses T Runnels. Total registration for 1911 12 was 41 graduates 10 The next session begins Sept 2 1912 and ends May 12 1913

ECLECTIC MEDICAL UNIVERSITY, 1423 Independence Avenue —Organized at Kansas City, Mo in 1898 with the present title Moved to Kansas City Kan in 1907 and took the name of Western Eclectic College of Medicine and Surgery Returned to Kansas City, Mo in 1909 and resumed the present title First class graduated in 1900 Fees are $100 each year The Secretary is Dr D R Alexander The total registration for 1911 12 was 50 graduates 12 The fifteenth session begins Sept. 4, 1912 and ends May 19 1913 *Reported not in good standing by the Missouri State Board of Health*

St Joseph

THE ENSWORTH MEDICAL COLLEGE Seventh and Jule Streets —Organized in 1876 as the St Joseph Hospital Medical College In 1882 it merged with the College of Physicians and Surgeons to form the St Joseph Medical College In 1888 changed name to Ensworth Medical College In 1905 merged with the Central Medical College organized in 1894 to form the Ensworth Central Medical College In 1907 the present title was resumed The faculty numbers 34 The course covers four years of eight months each The fees for the four years respectively are $90, $95 $75 and $95 The Secretary is Dr T E Potter Total registration for 1911 12 was 47 graduates 5 The next session begins Sept 20 1912 and ends about May 20 1913

St Louis

WASHINGTON UNIVERSITY MEDICAL SCHOOL 1806 Locust Street.—Organized in 1842 as the Medical Department of St Louis University In 1855 it was chartered as an independent institution under the name of St. Louis Medical College The first class graduated in 1843 In 1891 it became the Washington University Medical School In 1899 it absorbed the Missouri Medical College The faculty comprises 23 professors and 51 lecturers instructors etc., a total of 74 The course is four years of eight months each The total fees for the four years are, respectively $155 $150 $150 and $155 The Dean is Dr Eugene L Opie The total registration for 1911 12 was 100 graduates 44 The next session begins Sept 30 1912 and ends June 12 1913

ST LOUIS UNIVERSITY SCHOOL OF MEDICINE 1402 South Grand Avenue —Organized in 1901 by union of Marion Sims Medical College organized in 1890 and Beaumont Hospital Medical College organized in 1886 It became the Medical Department of St Louis University in 1903 The faculty is composed of 45 professors 64 lecturers and assistants a total of 109 The curriculum covers four years of thirty four weeks each The total fees are $120 each year The Dean is Dr E P Lyon The total registration for 1911 12 was 271 graduates 70 The next session begins Oct 1 1912 and ends June 16 1913

ST LOUIS COLLEGE OF PHYSICIANS AND SURGEONS Jefferson Avenue and Gamble Street —Organized in 1869 Classes graduated in 1870 and each subsequent year until 1873 when it suspended It was reorganized in 1879 Classes graduated in 1880 and subsequent years The fees for the four years are respectively $110 $105 $100 and $95 The Secretary is Dr Walter U Kennedy Total registration for 1911 12 was 38 graduates, 11 The next session begins Sept 15 1912 and ends May 17 1913

AMERICAN MEDICAL COLLEGE 407 South Jefferson Avenue —Organized in 1873 as an Eclectic College Eclecticism dropped in 1910 Absorbed the Barnes Medical College in 1911 Two classes were graduated each year from 1874 to 1883 inclusive Since then one class has graduated each year The course covers four years of eight and a half months each The fees for the four years respectively are $130, $130 $110 and $130 The Dean is Dr James Moores Ball The total registration for 1911 12 was 172 graduates 44 The next session begins Sept 11 1911 and ends June 2 1912

NEBRASKA

Nebraska population 1 192 214 has three medical colleges The University of Nebraska College of Medicine and the John A Creighton Medical College at Omaha, population 124,096, and the Cotner Medical College at Lincoln population 43,973

Lincoln and Omaha

COLLEGE OF MEDICINE UNIVERSITY OF NEBRASKA Eleventh and R Streets Lincoln and Twelfth and Pacific Streets Omaha —Organized in 1881 as the Omaha Medical College The first class graduated in 1882 It became the Medical Department of Omaha University in 1891 In 1902 it affiliated with the University of Nebraska with the present title Two years of collegiate work are required for admission The first two years are given at Lincoln the last two at Omaha The faculty is composed of 30 professors and 30 lecturers and instructors total 60 The fees are approximately $100 per annum Total registration for 1911 12 was 70 graduates 9 The next session at Omaha begins Sept 10 1912 and ends May 30 1913 The next session at Lincoln begins Sept 18, 1912 and ends June 7, 1913

Bethany-Lincoln

COTNER MEDICAL COLLEGE Eclectic University Campus Bethany and corner 13th and P Streets Lincoln It is the Medical Department of Cotner University —Organized in 1890 as the Lincoln Medical College Assumed present title in 1911 The first class graduated in 1891 The Secretary is Dr R H Spradling The Registrar is Prof R L Hoff Bethany The total registration for 1911 12 was 26 graduates 7 The next session begins Sept 16 1912 and ends May 20 1913

Omaha

JOHN A CREIGHTON MEDICAL COLLEGE Fourteenth and Davenport Streets It is the Medical Department of Creighton University —Organized in 1892 The first class graduated in 1895 It has a faculty of 30 professors and 18 associates lecturers and assistants, a total of 48 The course of study embraces four years of eight months each The total fees for the four years respectively are $105 $100 $100 and $105 The Dean is Dr D C Bryant City National Bank Building Total number of students registered in 1911 12 was 194 graduates 51 The twenty first session begins Sept 1 1912 and ends April 28 1913

NEW HAMPSHIRE

New Hampshire, population 443 140 has one medical college located at Hanover, population 1 894

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797 The first class graduated in 1798 It is the Medical Department of Dartmouth College The faculty is made up of 25 professors and 3 instructors a total of 28 Two years of collegiate work are required for admission The course covers four years of eight months each The fees for the four years are respectively $145 $147 $125 and $125 The Dean is Dr John M Gile The total registration for 1911 12 was 36 graduates 9 The work of the first and second years begins with that of the academic department Sept 19 1912 and ends June 21 1913 for the advanced classes the course begins Aug 6 1912 and ends April 22 1913

NEW YORK

New York State population 9 113,614 has eleven medical colleges Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital New York Homeopathic Medical College and Hospital New York Medical College and Hospital for Women Eclectic Medical College of the City of New York Cornell University Medical Colledge, the University and Bellevue Hospital Medical College and Fordham University School of Medicine are located in New York City, population 4 766 883 Albany Medical College is located in Albany a city of 100 253 people The University of Buffalo Medical Department is situated in Buffalo population 423,715 The College of Medicine Syracuse University, is in Syracuse, a city of 137 249 inhabitants

Albany

ALBANY MEDICAL COLLEGE Lancaster and Jay Streets —Organized in 1838 The first class graduated in 1839 It became the Medical Department of Union University in 1873 The faculty is composed of 27 professors and 73 lecturers assistants etc a total of 100 The curriculum covers four years of eight months each Fees First year $130 second year $145 third year $120 and fourth year $130 The Registrar is Dr Willis G Tucker The total registration for 1911 12 was 223 graduates 43 The eighty second session begins Sept 18 1912 and ends May 13 1913

Buffalo

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT High Street near Main —Organized in 1846 The first class graduated in 1874 It absorbed the Medical Department of Niagara University in 1898 The faculty is composed of 35 professors and 45 lecturers assistants etc a total of 80 The course covers four years of eight months each The total fees for the four years respectively are $185 $180 $140 and $140 The Dean is Dr Herbert U Williams Total registration for 1911 12 was 228 graduates 40 The sixty seventh session begins Sept 23 1912 and ends May 30 1913

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS 437 West Fifty Ninth Street —Organized in 1807 by the regents of the University of the State of New York as their medical department The first class graduated in 1811 Affiliated with Columbia College in 1814 and was permanently connected in 1860 when it became the Medical Department of Columbia College That institution became Columbia University in 1891 The faculty is composed of 82 professors and 137 instructors demonstrators etc a total of 219 Two years of collegiate work including courses in physics chemistry and biology are required for admission The work covers four years of eight months each The Dean is Dr Samuel W Lambert The total fees for the first year are $[illegible] for the second and third $270 and $27[illegible] for the fourth year Total registration for 1911 12 was 347 graduates 8[illegible] The 10[illegible]th session begins Sept [illegible] 1912 and ends June 4 1913

CORNELL UNIVERSITY MEDICAL COLLEGE First Avenue and Twenty Eighth Street New York City and Ithaca —Organized in 1898 The first class was graduated in 1899 The work of the first year may be taken either in Ithaca or New York The faculty is composed of 71 professors and 102 assistants lecturers instructors etc a total of 173 All candidates for admission must be graduates of approved colleges or scientific schools and in addition must have such knowledge of physics inorganic chemistry and biology as may be obtained in college by a year s course in these subjects when accompanied by laboratory work Fees First year $190 second and third, $185 each and $200 for the fourth year The Dean is Dr William M Polk Total registration for 1911 12 was 85 graduates 11 The fifteenth session begins Oct 2 1912, and ends June 12 1913

Eclectic Medical College of the City of New York, 239 East Fourteenth Street —Organized in 1865 The first class graduated in 1867 The faculty consists of 21 professors and 32 lecturers assistants etc a total of 53 The course covers four years of eight months each The Dean is Dr Samuel A Hardy Total registration for 1911 12 was 45 graduates 11 The next session begins Sept. 11 1912 and ends May 14 1913

Fordham University School of Medicine, Third and Pelham Avenues —Organized in 1905 First class graduated in 1909 The faculty consists of 46 professors and 46 lecturers and assistants a total of 92 The course of instruction covers four years of eight and a half months each Fees $200 each year A year s work in a recognized college of liberal arts is required for admission The Dean is Dr James J Walsh The total registration for 1911 12 was 118 graduates 24 The eighth session begins Sept. 27 1912 and ends June 12 1913

Long Island College Hospital Henry Street near Atlantic Avenue Brooklyn —Organized in 1858 The first class graduated in 1860 It has a faculty of 9 professors and 86 assistants instructors etc a total of 95 The course covers four years of eight months each Fees First year $205 second year $200 third $180 and $200 for the fourth year The Secretary is Dr Joseph H Raymon Total registration 1911 12 was 412 graduates 72 The fifty fifth session begins Sept 28 1911 and ends June 3 1912

New York Homeopathic Medical College and Flower Hospital Eastern Boulevard between Sixty Third and Sixty Fourth Streets —Organized in 1858 Incorporated in 1860 as the Homeopathic Medical College for the State of New York The present title was assumed in 1869 The first class graduated in 1861 The faculty consists of 43 professors and 42 assistants lecturers etc a total of 85 The Dean is Dr Royal S Copeland Total registration for 1911 12 was 170 graduates 27 The fifty third session begins Oct 2 1912 and ends May 28 1913

New York Medical College and Hospital for Women 17 19 West One Hundred and First Street.—Organized in 1863 The first class graduated in 1864 The faculty consists of 30 professors and 20 lecturers and assistants a total of 50 The course covers four years of thirty weeks each The fees for each of the four years respectively are $155 $150 $135 and $155 The Dean is Dr Helen Cooley Palmer The total registration for 1911 12 was 31 graduates 2 Matriculants are not listed in the annual announcement The fiftieth session begins Sept 30 1912 and ends May 24 1913

University and Bellevue Hospital Medical College First Avenue and Twenty Sixth Street —Organized in 1898 by the union of the New York University Medical College organized in 1841 and the Bellevue Hospital Medical College organized in 1861 It is the Medical Department of New York University The faculty is composed of 39 professors and 140 instructors etc in all 179 The course covers four years of eight months each The fees are $200 per year The Dean is Dr Egbert Le Fevre Total registration for 1911 12 was 476 graduates 80 The next session begins Oct 1 1912 and ends June 4 1913

Syracuse

Syracuse University College of Medicine 307 311 Orange Street —Organized in 1872 when the Geneva Medical College was removed to Syracuse under the title The College of Physicians and Surgeons of Syracuse University Present title assumed in 1875 The first class graduated in 1873 and a class graduated each subsequent year In 1884 the amalgamation with the university was made complete Two years of a recognized college course are required for admission The course covers four years of thirty two weeks each The total fees for each of the four years are respectively $101 $101 $151 and $166 The faculty is composed of 23 professors and 42 associate and assistant professors lecturers and instructors The Dean is Dr John L. Heffron The total enrolment for 1911 12 was 91 graduates 33 The forty first session begins Oct 1 1912 and ends June 11 1913

NORTH CAROLINA

North Carolina population 2 206,287, has four medical schools two of which give only the first two years of the medical course The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,200 The Leonard School of Medicine is at Raleigh, population 19,218 The North Carolina College is at Charlotte, population 34 014 Wake Forest School of Medicine is at Wake Forest population 823

Chapel Hill

University of North Carolina Medical Department —Organized in 1890 Until 1902 this school gave only the work of the first two years when the course was extended to four years by the establishment of a department at Raleigh The first class graduated in 1903 A class was graduated each subsequent year including 1910 when the clinical department at Raleigh was discontinued The faculty is composed of 13 professors and 14 lecturers assistants etc. a total of 27 The total fees for the two years respectively are $115 and $110 The Dean is Dr I H Manning The total registration for 1911 12 was 74 The twenty seventh session begins Sept 9 1912 and ends June 3 1913

Charlotte

North Carolina Medical College Church and Sixth Streets —Organized in 1887 at Davidson as the Davidson School of Medicine It was a preparatory school only not granting any degrees until 1902 when it was chartered under its present name The first class was graduated in 1893 Removed to Charlotte in 1907 The faculty numbers 45 The course covers four years of about eight months each The fees for the four years are, respectively $107 $102 $100 and $130 The Dean is Dr Walter O Nisbet The total registration for 1911 12 was 100, graduates 24 The next session begins Sept. 11, 1912, and ends May 5, 1913

Raleigh

Leonard Medical School.—Colored This department of Shaw University was established in 1882 Classes were graduated in 1886 1888 and in all subsequent years It has a faculty of 14 The course covers four years of thirty weeks each The total fees for each year are $57, graduation fee $10 The Dean is Dr William Moncure Total registration for 1911 12 was 121 graduates 30 The thirty first session begins Oct 2 1912 and ends May 15, 1913

Wake Forest

Wake Forest College School of Medicine —This school was organized in 1902 The faculty including the professors of chemistry physics and biology numbers 9 exclusive of laboratory assistants Only the first two years of the medical course are offered after the completion of freshmen and sophomore college work and upon this combined course the B S degree is conferred Each annual course extends over nine months The fees for each year aggregate $102 50 The President is William Louis Poteat. The total registration for 1911 12 was 30 The eleventh session begins Sept 3, 1912 and ends May 23 1913

NORTH DAKOTA

North Dakota, population 577,056, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University, near Grand Forks, a city of 12,478 people It gives only the first two years of the medical course

University

University of North Dakota College of Medicine —Organized in 1905 The faculty is composed of 5 professors and 5 instructors a total of 10 The course consists of two years academic work and two years of medical college subjects occupying nine months each year The total fees for each of the medical years are $50 The Dean is Dr Harley F French The total registration for 1911 12 was 13 The eighth session begins Sept. 24, 1912 and ends June 13 1913

OHIO

Ohio, population 4,767,121, has six medical colleges Two of these, the Ohio Miami Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 364,463 inhabitants Cleveland, population 560,663 contains two medical schools Western Reserve Medical College and the Cleveland Pulte Medical College Columbus, population 181,548, contains one medical college, the Starling Ohio Medical College Toledo, with 168,497 people, has one medical school, the Toledo Medical College

Cincinnati

The Ohio Miami Medical College of the University of Cincinnati Clifton Avenue, west of Vine Street —Organized in 1909 by the union of the Ohio Medical College (founded in 1819) with the Miami Medical College (founded in 1852) The Ohio Medical College became the Medical Department of the University of Cincinnati April 26 1896 Under a similar agreement March 2 1909 the Miami Medical College also merged into the University when the present title was taken The faculty consists of 45 professors 66 associates assistants etc a total of 111 The course covers four years of eight months each The fees are a tuition fee of $125 a year a matriculation fee of $5 payable but once and a graduation fee of $25 The Dean is Dr Paul G Woolley The total registration for 1911 12 was 113 graduates 56 The next session begins Oct 1 1912 and ends June 14 1913

Eclectic Medical College 630 West Sixth Street —Organized in 1832 at Worthington as the Worthington Medical College Removed to Cincinnati in 1843 In 1845 it was chartered as the Eclectic Medical Institute In 1857 the American Medical College organized in 1839 was merged into it and in 1859 the Eclectic College of Medicine and Surgery organized in 1856 merged into it In 1910 it assumed its present title Classes were graduated in 1833 and in all subsequent years except 1839 to 1843 inclusive It has a faculty of 21 professors and 10 lecturers and assistants a total of 31 The course covers four years of thirty weeks each The fees are $100 for each year The Dean is Dr Rolla L Thomas Total registration for 1911 12 was 80 graduates 19 The next session begins Sept. 16 1912 and ends May 6 1913

Cleveland

Cleveland Pulte Medical College Prospect Avenue and Huron Road —Homeopathic —Organized in 1849 as the Western College of Homeopathic Medicine The first class graduated in 1853 In 1857 it became the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women organized in 1868 merged into it In 1894 it became the Cleveland University of Medicine and Surgery In 1898 it merged with the Cleveland Medical College organized in 1890 and assumed the title of Cleveland Homeopathic Medical College In 1910 Pulte Medical College of Cincinnati merged into it and the present title was assumed The faculty numbers 58 The fees are $125 each year The Dean is Dr George H Quay Total registration for 1911 12 was 79 graduates 14 The next session begins Oct 1 1912 and ends June 12 1913

Western Reserve University Medical Department St Clair Avenue and East Ninth Street —Organized in 1843 as the Cleveland Medical College The first class graduated in 1845 It assumed the present title in 1881 In 1910 it absorbed the Cleveland College of Physicians and Surgeons Under the terms of the merger the

Ohio Wesleyan University will grant degrees to students enrolled in the College of Physicians and Surgeons prior to the merger The faculty includes 40 professors and 34 lecturers assistants etc a total of 74 The curriculum embraces four years of eight and one-half months each Three years of college work are required for admission to the first year of medical course The total fees for the first year are $142 and $135 each for the other three years Beginning Oct 1 1913 the tuition fee for all students will be $150 The Secretary is Dr F C Waite The total registration for 1911 12 was 176 including 41 students of the College of Physicians and Surgeons there were 50 graduates in 1912, including 15 from the latter school The seventieth session begins Oct 1 1912 and ends June 12 1913

Columbus

Starling Ohio Medical College Buttles Avenue and Park Street—Organized in 1907 by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890) The faculty consists of 27 professors and 37 lecturers demonstrators etc. a total of 64 The course covers four years of eight months each Matriculation, $5 tuition for first year students and all entering hereafter $150 for each of the three advance classes $135 The Dean is Dr W J Means The total registration for 1911 12 was 256 graduates 54 The next session begins Sept 25 1912 and ends May 28 1913

Toledo

Toledo Medical College Cherry and Page Streets—Organized in 1883 The first class graduated in 1883 The faculty numbers 49 The curriculum embraces four years of eight months each The fees for each of the four years are respectively $137 $132 $125 and $125 The total registration for 1911 12 was 39 graduates 9 The next session begins Oct 1 1912 and ends May 24 1913

OKLAHOMA

Oklahoma population 1,657 155, has one medical college, the School of Medicine of the State University of Oklahoma The work of the first and second years is given in the academic laboratories at Norman a city of 3,040 inhabitants The work of the third and fourth years is given in Oklahoma City, which has a population of 64,205 and which is eighteen miles north of Norman

Norman and Oklahoma City

State University of Oklahoma School of Medicine—Organized in 1900 Gave only the first two years of the medical course until 1910 when a clinical department was established at Oklahoma City It has a faculty of 12 professors and 31 instructors a total of 43 The course is four years of nine months each An *optional course of six years is offered for the degrees of B S and* M D The total fees for the four years are respectively $55 $28 $100 and $105 The Dean is Dr Robert F Williams 317 East Fourteenth Street Oklahoma City The total registration for 1911 12 was 51 graduates 10 The thirteenth session begins Sept 26 1912 and ends June 12 1913

OREGON

Oregon population 672,765 has two medical colleges The Medical Department of Willamette University located at Salem a city of 14,094 people and the University of Oregon Medical Department, in Portland, a city of 207 214 population

Portland

University of Oregon Medical Department Lovejoy and Twenty Third Streets—Organized in 1887 The first class graduated in 1888 It has a faculty of 16 professors and 30 lecturers assistants, etc. a total of 46 The course is four years of eight months each Fees First year $142 50 second, $137 50 third $107 50 and for the fourth $57.50 The Dean is Dr K. A J Mackenzie The total registration for 1911 12 was 67 graduates 17 The twenty sixth session begins Oct. 1 1912 and ends June 1 1913

Salem

Medical Department Willamette University—Organized in 1865 at Salem Classes were graduated in 1867 and in all subsequent years except 1896 It moved to Portland in 1878 but returned to Salem in 1895 The faculty numbers 18 The course is four years of eight months each The fees for the four years respectively are $122 50 $110 $87 50 and $57 50 The Dean is Dr W H Byrd The total registration for 1911 12 was 60 graduates 12 The next session begins Oct 1 1912 and ends June 1, 1913

PENNSYLVANIA

Pennsylvania population 7 665 111 has seven medical colleges Of these Philadelphia having a population of 1,549 008 contains six as follows University of Pennsylvania Department of Medicine Jefferson Medical College Hahnemann Medical College Woman's Medical College of Pennsylvania Medico Chirurgical College of Philadelphia and Temple University Department of Medicine The other school the Medical Department of the University of Pittsburgh is situated in Pittsburgh a city of 533 905

Philadelphia

University of Pennsylvania Department of Medicine Thirty sixth Street and Hamilton Walk—Organized in 1765 Classes were graduated in 1768 and in all subsequent years except 1772 79 inclusive The original title was the Department of Medicine College of Philadelphia which was changed to the present title in 1791 It granted the first medical diploma issued in America The faculty is made up of 30 professors 16 associate adjunct and assistant professors and 120 demonstrators lecturers associates instructors etc a total of 166 The requirements for admission are the equivalent of work prescribed for the first two years in recognized colleges which work must include a knowledge of physics chemistry and general biology or zoology with laboratory work as specified by the College Entrance Examination Board and in addition two foreign languages one of which must be French or German The course embraces study of four years of 34 weeks each The total fees for each of the four years are respectively $218 $213 $210 and $211 50 The Dean is Dr William Pepper Total registration for 1911 12 was 367 graduates 124 The next session begins Sept 27 1912 and ends June 18 1913

Jefferson Medical College, Tenth and Walnut Streets—Organized in 1825 as the Medical Department of Jefferson College Cannonsburg The first class graduated in 1826 The present title was assumed in 1838 It has a faculty of 32 professors and 102 lecturers demonstrators etc a total of 134 The course of study covers graded work of four years of eight and a half months each An optional fifth year is offered The tuition is $180 a year with a matriculation fee of $5 paid but once The Subdean is Dr Ross V Patterson The total registration for 1911 12 was 610 graduates 148 The eighty-eight session begins Sept 23 1912 and ends June 7 1913

Medico Chirurgical College of Philadelphia Cherry Street between Seventeenth and Eighteenth Streets—Organized in 18[illegible]1 The first class graduated in 1882 The faculty is composed of [illegible] professors and 66 lecturers assistants etc a total of 10[illegible] The work embraces four years of eight months each The fees for each of the four years are respectively $162 50 $159 $155 50 and $1[illegible] The Dean is Dr Seneca Egbert The total registration for 1911 12 was 341 graduates 77 The thirty second session begins Sept [illegible] 1912 and ends June 6 1913

Woman's Medical College of Pennsylvania Twenty first and N College Avenue—Organized in 1850 Classes were graduated in 1851 and in all subsequent years except 1861 and 1862 It has a faculty of 10 professors and 42 assistants lecturers etc in all 52 The curriculum covers four years of eight months each Fees for each of the four years are respectively $161 $156 $154 and $15[illegible] The Dean is Dr Clara Marshall The total registration for 1911 12 was 112 graduates, 30 The sixty third session begins Sept 18 1912 and ends June 4 1913

Hahnemann Medical College and Hospital 226 North Broad Street—Organized in 1848 as the Homeopathic Medical College of Pennsylvania In 1869 it united with the Hahnemann Medical College of Philadelphia taking the present title The first class graduated in 1849 It has a faculty of 31 professors and 57 lecturers instructors etc in all 88 The work covers four years of eight and a half months each Fees For each year $150 matriculation $5 laboratory fee $10 The Dean is Dr William B Van Lennep The total registration for the college year 1911 12 was 116 graduates 35 The sixty fifth session begins Sept 23 1912 and ends June 5 1913

The Temple University Department of Medicine Eighteenth and Buttonwood Streets—Organized in 1901 The first class graduated in 1904 The faculty numbers 84 It gives a four year day course The fees are $150 per year The Dean is Dr Frank C Hammond. The total registration for 1911 12 was 81 graduates 25 The twelfth session begins Sept 16 1912 and ends June 5 1913

Pittsburgh

University of Pittsburgh Medical Department Grant Boulevard—Organized in 1886 as the Western Pennsylvania Medical College Became the Medical Department of the University of Pittsburgh in 1908 Removed to the University campus in 1910 The first class graduated in 1887 The faculty is composed of [illegible] professors and 78 associates assistants etc 103 in all Entrance requirements are a four year high school course or its equivalent plus one year of recognized college work which must have included chemistry physics and biology The course of study embraces four years of eight and a half months each The total fees per year are $220 or $210 if paid in advance The Dean is Dr Thomas S Arbuthnot The total registration for 1911 12 was 174 graduates 67 The twenty seventh session begins Sept 30 1912 and ends June 25 1913

SOUTH CAROLINA

South Carolina, population 1,515 400 has one medical college situated in Charleston a city of 58 833 people

Charleston

The Medical College of the State of South Carolina Queen and Franklin Streets—Founded in 1823 as the Medical College of South Carolina In 1832 it was chartered with the present title Classes were graduated in 1825 and in all subsequent years except 1861 to 1865 inclusive It has a faculty of 11 professors and 31 lecturers instructors etc a total of 42 The course covers four years of eight months each The total fees each year are $100 The Dean is Dr Robert Wilson Total enrolment for 1911 12 was 164 graduates 65 The ninetieth session begins Oct 1 1912 and ends June [illegible] 1913

SOUTH DAKOTA

South Dakota population 583 888 has one medical college the University of South Dakota College of Medicine located at Vermilion a city of 2 147 people

Vermilion

University of South D[illegible] Medicine [illegible]
ized in 1907 Offers only [illegible]
Two years work in a co[illegible]
sion The faculty n[illegible]
B S Th total regist[illegible]
begins Sept. 17, 1912

TENNESSEE

Tennessee, population 2,184,789, has six medical colleges Of these Vanderbilt University Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 106,476 Knoxville, population 37,758, contains one college, the Tennessee Medical College Memphis Hospital Medical College, the Medical Department of the University of Tennessee and the University of West Tennessee are located in Memphis, population 136,363

Knoxville

Medical Department of Lincoln Memorial University Cleveland Street and Dameron Avenue—Organized in 1889 as the Tennessee Medical College Has been affiliated with the Lincoln Memorial University since 1906 Assumed present title in 1909 The first class graduated in 1890 It has a faculty of 23 professors and 13 assistants a total of 36 The curriculum covers four years of seven months each Fees Tuition each year $100 matriculation fee $5 graduation fee $25 The total registration for 1911 12 was 97 graduates 25 The twenty fourth session begins Oct 1 1912 and ends May 11 1913

Memphis

University of Tennessee Medical Department, 718 Union Avenue—Organized 1876 at Nashville as Nashville Medical College Became Medical Department University of Tennessee 1879 First class graduated 1877 and a class graduated each subsequent year In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee Union dissolved in 1911 the University of Nashville Medical Department became extinct and this college removed to Memphis where it united with the College of Physicians and Surgeons Total registration in the combined schools in 1911 12 was 155 *graduates* 48 The next session begins Sept 25 1912 and ends May 15 1913

Memphis Hospital Medical College Marshall Avenue and Myrtle Street.—Organized in 1880 The first class graduated in 1881 It has a faculty of 11 professors and 35 lecturers instructors etc. a total of 46 The course covers four years of thirty weeks each The total fees for each of the first three years are $125 for the fourth, $150 The Dean is Dr W B Rogers Total registration for 1911 12 was 319 graduates 104 The thirty third annual session begins Oct 1 1912 and closes May 16 1913

Medical Department of the University of West Tennessee Colored 1190 South Phillips Place.—Organized in 1900 The first *class graduated in* 1904 and a class graduated each subsequent year It has a faculty of 18 The course is four years of thirty weeks each The fees are $50 per year graduation $10 extra The Dean is Dr M V Lynk Registration for 1911 12 was 37 graduates 9 The thirteenth session begins Sept 16 1912, and ends May 1 1913

Nashville

Vanderbilt University Medical Department—This school was founded in 1874 The first class graduated in 1875 The faculty consists of 25 professors and 40 lecturers a total of 65 The course covers four years of eight months each The total fees for each of the first three years are $125 and for the fourth year $150 The Secretary is Dr L E Burch The total registration for 1911 12 was 302 graduates 66 The thirty ninth session begins Sept 19 1912 *and* ends May 20 1913

Meharry Medical College, Colored Maple and Chestnut Streets—This school was organized in 1876 and is the Medical Department of Walden University The faculty is made up of 12 professors and 14 instructors demonstrators etc 26 in all The work embraces four years of thirty weeks each The total fees for each of the first three years are $60 and for the fourth year $75 The Dean is Dr G W Hubbard Total registration for 1911 12 was 335 graduates 70 The thirty seventh session begins Sept 11 1912 and ends April 21 1913

TEXAS

Texas, population 3 096 542 has four medical colleges The University of Texas Department of Medicine is located at Galveston a city of 36 981 inhabitants The Fort Worth School of Medicine is at Fort Worth population 73,312 The Baylor University College of Medicine and the Southern Methodist University Medical College are situated in Dallas, population 92 104

Dallas

Baylor University College of Medicine 435 37 South Lrvay Street—Organized in 1900 as the University of Dallas Medical Department In 1903 it took its present name and became the Medical Department of Baylor University at Waco It acquired the charter of Dallas Medical College in 1904 *The first* class graduated in 1901 The faculty numbers 34 The course is four years of seven months each The fees are $100 each year matriculation fee of $5 paid but once graduation fee $25 The Dean is Dr E H Cary Total registration for 1911 12 was 68 graduates 20 The thirteenth session begins Oct 1 1912, *and* ends June 1 1913

Southern Methodist University Medical College.—Organized in 1903 as the Southwestern University Medical College Name changed as above in 1912 The first class graduated in 1904 It has a faculty of 20 professors and 10 instructors assistants etc. a total of 30 The course of instruction covers four years of eight months each The fees for the four years are respectively $110 $105 $100 and $125 The Dean is Dr John O McReynolds Total registration for 1911 12 was 62 graduates 14 The tenth session begins Oct 1 1912 and ends May 30 1913

Fort Worth

Fort Worth School of Medicine Calhoun and Fifth Streets—Organized in 1894 as the Medical Department of Forth Worth University In 1912 the latter institution changed its name to Texas Christian University The first class graduated in 1895 Present title in 1911 It has a faculty of 14 professors and 35 lecturers, assistants etc in all 52 The course covers four years of seven and a half months each The total fees for each of the four years respectively are $114 $113 $108 and $125 The Dean is Dr W R Thompson The total registration for 1911 12 was 71 graduates 17 The nineteenth session begins Sept 30 1912 and ends May 15 1913

Galveston

University of Texas Department of Medicine, on the Strand between Ninth and Tenth Streets—Organized in 1891 The first class graduated in 1892 It has a faculty of 13 professors and 15 lecturers a total of 28 The curriculum embraces four years of eight months each The entrance requirement is one year of collegiate work in addition to a four year high school education The total fees for the four years respectively are $61 $31 $21 and $6 The Dean is Dr William S Carter Total registration for 1911 12 was 162 graduates 40 The twenty second session begins Oct 1 1912 and ends May 31, 1913

UTAH

Utah, population 373,351, has one medical college, the Medical Department of the University of Utah, situated at Salt Lake City, which has 92,777 people

Salt Lake City

University of Utah School of Medicine—Organized in 1906 Gives only first two years of the medical course Each course *covers thirty six weeks. Two years of collegiate work are required* for admission The medical faculty consists of 4 professors and 7 lecturers and assistants a total of 11 The fees are $55 each year The Acting-dean is Dr Charles T Vorhies Total registration for 1911 12 was 12 The sixth session begins Sept 16 1912 and ends May 30 1913

VERMONT

Vermont, population 355,956, has one medical school, located at Burlington, a town of 20,468 people

Burlington

University of Vermont College of Medicine Pearl Street, College Park.—Organized with complete course in 1822 Classes graduated in 1823 to 1836 inclusive when the school was suspended It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years The faculty numbers 48 The course of study covers four years of nine months each The total *fees for each of the first three years are* $135 *and* $160 *for the* fourth year The Registrar is Dr M W Andrews The total registration for 1911 12 was 176 graduates 47 The next session begins Sept 25 1912 and ends June 25 1913

VIRGINIA

Virginia population 2,061,612, has three medical colleges one, the Medical Department of the University of Virginia, *situated in* Charlottesville population 6,765, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 127,628

Charlottesville

University of Virginia Department of Medicine—Organized in 1827 Classes were graduated in 1828 and in all subsequent years except 1865 It has a faculty of 14 professors and 18 lecturers *instructors assistants etc a total of* 82 The requirements for admission are the completion of a four years high school course or its equivalent and a year of college work devoted to chemistry physics and biology Total fees each years are $140 The Dean is Dr R H Whitehead The total registration for 1911 12 was 82 graduates 12 The eighty fourth session begins Sept 12, 1912 and ends June 14 1913

Richmond

Medical College of Virginia, Marshall and College Streets—Organized in 1838 as the Medical *Department of Hampden Sydney* College Present title was taken in 1854 Classes were graduated in 1840 and in all subsequent years It has a faculty of 20 professors and 47 lecturers instructors etc a total of 67 The requirement for admission is a full four year high school education. The course embraces four years of eight months each Fees $100 each year graduation fee $30 The Dean is Dr Christopher Tompkins The total registration for the college year 1911 12 was 242 graduates 43 The seventy fifth session begins Sept 17 1912 and ends June 3 1913

University College of Medicine, Twelfth and Clay Streets—Organized in 1893 The first class graduated in 1894 It has a faculty of 68 Curriculum covers four years of eight months each The total fees are $100 for each year graduation fee $30 The Dean is Dr Alfred L Gray The total registration for the college year 1911 12 was 160 graduates 35 The twentieth session begins Sept 18 1912 and ends May 29 1913

WEST VIRGINIA

West Virginia, population 1 221,119, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course It is located at Morgantown, a city of 9,150 population.

Morgantown

West Virginia University School of Medicine —Organized in 1902 and gives only the first two years of the medical course One year of work in an approved college of liberal arts is required for admission Sessions extend through nine months The faculty numbers 9 Fees For residents of the state, $25 each year for non residents $50 The Dean is Dr John N Simpson The total enrolment for 1911 12 was 19 The next session begins Sept 16 1912 and ends June 15 1913

WISCONSIN

Wisconsin, population 2,333,860, has three medical colleges the Medical Department of the University of Wisconsin which teaches the first two years of the medical course and is located at Madison, a city of 25 531 people, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 373,857 people

Madison

University of Wisconsin College of Medicine —Organized in 1907 Gives only the first two years of the medical course For matriculation at least two years in a college of arts and science or an equivalent training are required including two years of Latin a reading knowledge of French and German and at least a year s work in physics chemistry and biology It has a faculty of 10 professors and 7 lecturers instructors etc a total of 17 Tuition fees For residents of the state $80 each year for non residents $130 The Dean is Dr Charles R Bardeen The registration for 1911 12 was 60 The fifth session begins Sept 30 1912 and ends June 22 1913

Milwaukee

Milwaukee Medical College, Ninth and Wells Streets —Organized in 1894 *The first class graduated in 1895 It became the* Medical Department of Marquette University in 1907 It has a faculty of 36 professors and 34 lecturers instructors etc a total of 70 The course covers four years of eight months each The total fees are $135 each for the first three years and $150 for the fourth year The Dean is Dr Warren B Hill The total registration for 1911 12 was 242 graduates 48 The nineteenth session begins Oct 1 1912 and ends June 2 1913

Wisconsin College of Physicians and Surgeons Fourth Street and Reservoir Avenue —Organized in 1893 The first class graduated in 1894 In 1898 it became the Medical Department of Carroll College It has a faculty of 20 professors and 36 lecturers instructors etc. a total of 56 The curriculum includes four years of eight months each Total fees each year for the four years respectively are $145 $140 $135 and $150 The Dean is Dr Thomas C Phillips The total registration for 1911 12 was 43 graduates 12 The twenty first session begins Sept 30 1912 and ends May 30 1913

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population of 7,635,436 has one medical college, the University of the Philippines College of Medicine and Surgery It is located in the City of Manila, which in 1903 had a population of 219,928

Manila

University of the Philippines College of Medicine and Surgery, Manila —Organized in 1907 as the Philippine Medical School under the support of the government of the Philippine Islands Present title in 1910 The faculty numbers 5[illegible] In 1914 and thereafter two years of collegiate work leading to the degree of Bachelor of Arts will be required for admission The course extends over five years of nine months each with an additional one year of intern service The Dean is Dr William Everett Musgrave. The total registration for 1911 12 was 83 graduates 9 The sixth session begins July 1 1912 and ends April 1 1913

CANADA

The Dominion of Canada has eight medical colleges all of which now require a four year course including in the first year courses in physics, chemistry and biology This is practically equivalent to the courses in the colleges of this country which require one year of college work for admission including the science courses named None of the Canadian colleges has fixed a minimum requirement of two years of collegiate work or its equivalant preliminary to or as a part of the medical course

Manitoba

Manitoba Medical College Winnipeg —It is the Medical Faculty of the University of Manitoba Organized in 1883 first class graduated in 1886 and a class graduated each subsequent year The faculty numbers 50 The fees are $155 for the first year and $150 for each subsequent year The entire course covers five years the first year including courses in physics chemistry and biology The Dean is Dr H H Chown 263 Broadway Winnipeg Total registration for 1911 12 was 142 graduates 19 The next session begins Oct 1 1912 and ends May 1 1913.

Nova Scotia

Dalhousie Medical College Medical Faculty of Dalhousie University Halifax —Organized 1867 as Halifax School of Medicine united same year with Dalhousie University separately incorporated 1876 affiliated with Dalhousie University 1885 first class graduated 1872 and a class graduated each subsequent year except 1873 and 1880 The Medical Faculty of Dalhousie University is the Examining Board for Nova Scotia and teaches only the premedical branches Halifax Medical College taught the medical courses but the Medical Faculty conducted the examinations and granted the degrees Entire control secured by Dalhousie University in 1911 Its faculty numbers 29 Fees for each of the first two years are $75 for the third and fourth years, $100 and for the fifth year $90 The course covers five years the first year including courses in physics chemistry and biology The Dean is Dr A W H Lindsay The total registration for 1911 12 was 66 graduates 10 The next session begins Aug 29 1912 and ends April 24 1913

Ontario

University of Toronto Faculty of Medicine Toronto —Organized 1843 as the Medical Faculty of King s College Abolished in 1853 Reestablished in 1887 In 1903 it absorbed Trinity Medical College The course of study covers five years of eight months each the first year including courses in physics, chemistry and biology It has a faculty of 46 professors and 107 lecturers associates etc a total of 153 The fees are $150 each year The Secretary is Dr A Primrose The total registration for 1911 12 was 468 graduates 53 The next session begins Oct 1 1912 and ends May 31 1913

Medical Faculty of Queen s University Kingston —Organized 1854 first class graduated in 1855 and a class graduated each subsequent year The faculty was originally a department of the University but a separation took place in 1866 when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston In 1892 the school again became an integral part of Queen s University The faculty includes 25 professors and 14 assistants instructors etc a total of 39 The fees amount to $105 each year fee for M D C M degrees $30 *The course covers five years of seven months each the first year* including courses in physics chemistry and biology The total registration in 1911 12 was 249 graduates 53 The Dean is Dr J C Connell The next session begins Sept 12 1912 and ends April 30 1913

Medical Department of Western University London —Organized in 1881 first class graduated in 1883 and a class graduated each year subsequently The faculty numbers 18 The course is five years of seven and a half months each the first year including courses in physics chemistry and biology The tuition is $100 each year The Registrar is Dr W E Waugh Total registration for 1911 12 was 125 graduates 38 The next session begins Sept 16 1912 and ends May 1 1913

Quebec

Medical Faculty of McGill University —Founded 1824 as Montreal Medical Institution became the Medical Faculty of McGill University in 1829 first class graduated under the university auspices in 1833 No session between 1836-39 owing to political troubles In 1905 it absorbed the Faculty of Medicine of the University of Bishop College The course extends over five years of eight months each The faculty numbers 104 The total fees for each of the five years respectively are $160 $160 $150 $154 and $184 The total registration for 1910 11 was 308 graduates 31 The Registrar is Dr John W Scane The next session begins Sept 30 1912 and ends June 6 1913

Laval University Medical Department Quebec —The Quebec School of Medicine organized in 1848 became in 1852 Medical Department of Laval University first class graduated in 1855 and a class graduated each subsequent year The faculty numbers 24 The fees are $60 each year The course extends over five years the first year including courses in physics chemistry and biology The Dean is Dr Michael Joseph Ahern Quebec Total registration for 1911 12 was 72 graduates 10 The next session begins Sept 10 1912 and ends June 1 1913

Montreal School of Medicine and Surgery Montreal —Organized in 1878 as the Medical Department of Laval University Present name assumed in 1911 First class graduated in 1879 The faculty numbers 60 The course extends over five years The Dean is Dr E P Lachapelle *The total registration for 1911 12* was 195 graduates 51 The next session begins Oct 1 1912 and ends June 20 1913

FOREIGN MEDICAL COLLEGES

This list has been prepared from data collected by the Council on Medical Education

ARGENTINE REPUBLIC

Buenos Ayres —Universidad Nacional de Buenos Aires.
Cordova —Universidad Nacional

AUSTRALIA

Adelaide —University of Adelaide
Brisbane —University of Brisbane
Melbourne —University of Melbourne
Perth —University of Perth
Sydney —University of Sydney

AUSTRIA

Graz Styria —K. K Karl Franzens Universität
Innsbruck Tyrol —K K Leopold Franzens Universität
Krakow Galicia —C K Uniwersytet Jagiellonski w Krakowie
Lemberg Galacia —C K Uniwersytet Imienia Cesarza Franciszka I
Prague Bohemia —K K Deutsche Karl Ferdinands Universität
Prague Bohemia —C K Ceská Universita Karlo Ferdinandova
Vienna Nether Austria —K K Universität

BELGIUM

Brussels —Université Libre de Bruxelles
Ghent —Université de l etat de Gand
Liege —Université de Liége
Louvain —Université Catholique

BOLIVIA

La Paz—Universidad de La Paz
Sucre—Universidad de Sucre

BRAZIL

Bahia—Faculdade de Medicina Chirurgia e Pharmacia
Porto Allegre—Faculdade Livre de Medicina e Pharmacia.
Rio de Janeiro—Faculdade de Medicina Cirurgia e Pharmacia

CANADA

Halifax Nova Scotia—Dalhousie University
Kingston Ontario—Queen s University
London, Ontario—Western University
Montreal, Quebec.—McGill University
Montreal Quebec—Université Laval
Quebec, Quebec—Université Laval
Toronto, Ontario—University of Toronto
Winnipeg, Manitoba—University of Manitoba (Manitoba Medical College)

CHILE

Santiago—Universidad de Chile

CHINA

Hongkong—Hongkong College of Medicine
Nanking—East China Union Medical College
Pekin—The Union Medical College
Shanghai—Woman s Medical School
Tientsin—Imperial Medical College
Tsi nan fu—Union Medical College
Canton—University Medical College
Canton—South China Medical College

COLOMBIA

Bogota—Universidad de Bogota

CUBA

Havana—Universidad de la Habana

DENMARK

Copenhagen—Kjobenhavns Universitet.

ECUADOR

Quito—Universidad Central de Ecuador

EGYPT

Cairo—Kasr il Aini (School of Medicine)

ENGLAND

Birmingham—University of Birmingham
Bristol—University of Bristol
Cambridge—University of Cambridge
Durham—Durham University (Durham College of Medicine)
Leeds—University of Leeds
Liverpool—University of Liverpool
London—University of London (including the following Medical Schools (*a*) St. Bartholomew s Hospital (*b*) Charing Cross Hospital (*c*) St George s Hospital, (*d*) Guy s Hospital, (*e*) King s College (*f*) London Hospital (*g*) St Mary s Hospital (*h*) Middlesex Hospital (*i*) St Thomas's Hospital (*j*) University College (*k*) Westminster Hospital and (*l*) Royal Free Hospital (School of Medicine for Women)
Manchester—Victoria University (Owen s College founded in 1851 was merged in Victoria University in 1905)
Oxford—University of Oxford
Sheffield—University of Sheffield

FRANCE

Faculties of Medicine (to the degree of doctor in medicine including the five required examinations)
Bordeaux—Université de Bordeaux.
Lille—Université de Lille
Lyons—Université de Lyon
Montpellier—Université de Montpellier
Nancy—Université de Nancy
Paris—Université de Paris.
Toulouse—Université de Toulouse
Preparatory Schools of Medicine—Graduates of the 16 following schools are allowed to take the first two examinations if they are presided over by some member of a medical faculty
(*a*) *Full Exercise,"* or complete course (covering the work of 16 trimesters)
Algiers (Africa)—Academie d Alger
Marseilles—Université d Aix Marseille
Nantes—Ecole de Plein Exercice de Médecine et de Pharmacie (part of the University of Rennes)
Rennes—Université de Rennes
(*b*) *Reorganized Schools*—(Completing the first 12 trimesters)
Amiens—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Lille)
Angers—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Rennes)
Besancon—Université de Besancon
Caen—Université de Caen
Clermont—Université de Clermont
Dijon—Université de Dijon
Grenoble—Université de Grenoble
Limoges—Ecole de Médecine et de Pharmacie (part of the University of Poitiers.)
Poitiers—Université de Poitiers
Reims—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Paris)
Rouen—Ecole de Médecine et de Pharmacie (part of the University of Caen)
Tours—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Poitiers)

GERMANY

Berlin Prussia—Königliche Friedrich Wilhelm Universität.
Bonn Prussia—Rheinische Friedrich Wilhelms Universität
Breslau Prussia—Königliche Universität.
Erlangen, Bavaria—Königl Friedrich Alexanders Universität.
Freiberg Baden—Grossherzogliche Badische Albert Ludwigs Universität.
Giessen Hesse—Grossherzogliche Hessische Ludwigs Universität.
Gottingen, Prussia—Königliche Georg August Universität.
Greifswald, Prussia—Königliche Universität
Halle, Prussia—Vereinigte Friedrichs Universität Halle Wittenberg
Heidelberg, Baden—Grossherzogliche Ruprecht Karls Universität.
Jena, Thuringia—Grossherzogliche und Herzogliche Sächsische Gesamt Universität.
Kiel, Prussia—Königliche Christian Albrechts Universität.
Königsberg Prussia—Königliche Albertus Universität
Leipzig, Saxony—Universität.
Marburg, Prussia—Universität
Munich, Bavaria—Königliche Bayr Ludwig Maximilians Universität.
Rostock, Mecklenburg—Universität
Strassburg, Alsace Lorraine—Kaiser Wilhelms Universität
Tübingen Wurtemberg—Königliche Eberhard Karls Universität
Würzburg, Bavaria—Königliche Julius Maximilians Universität.

GREECE

Athens—National University

GUATEMALA

Guatemala—Facultad de Medicina.

HAITI

Port au Prince—L Ecole Nationale de Medecine

HONDURAS

Tegucigalpa—Facultad de Medicina

HUNGARY

Budapest—Budapesti Királyi Magyar Tudomány Egyetem (Royal Hungarian University)
Klausenburg—Kolozsvári Magyar Királyi Ferencz József Tudomány Egyetem (Royal Hungarian Franz Joseph University)
Pressburg—Royal Hungarian University

ICELAND

Reykjavik—Loeknaskoli (School of Physicians)

INDIA

Bombay—University of Bombay (Grant Medical College)
Calcutta—University of Calcutta (Medical College of Bengal)
Lahore—Panjab University (Lahore Medical College)
Lucknow—King George s Medical College
Madras—University of Madras (Madras Medical College)
Ceylon (Columbo)—The Ceylon Medical College
Note—There are several minor medical colleges in India not accredited by the examining board in England

IRELAND

Belfast—Queen s University
Dublin—National University of Ireland (including University College Dublin University College Cork University College Galway)
Dublin—University of Dublin (The School of Physic in Ireland Trinity College Catholic University Medical School)
Dublin—Royal College of Surgeons in Ireland Schools of Surgery (including the Carmichael College of Medicine and the Ledwich School of Medicine)

ITALY

Bologna—Regia Università degli Studi
Cagliari Sardinia—Università degli Studi
Camerino—Libera Università degli Studi
Catania—Regia Università degli Studi di Catania
Ferrara—Libera Università degli Studi di Ferrara
Florence—Regia Instituto di Studi Superiori Practici e di Perfezionamento
Genoa—Regia Università degli Studi
Messina—Regia Università degli Studi
Modena—Regia Università degli Studi
Naples—Regia Università degli Studi
Padua—Regia Università degli Studi
Palermo—Regia Università degli Studi.
Parma—Regia Università degli Studi
Pavia—Regia Università degli Studi
Perugia—Università Libra degli Studi
Pisa—Regia Università degli Studi
Rome—Regia Università degli Studi
Sassari—Regia Università degli Studi
Siena—Regia Università degli Studi
Turin—Regia Università degli Studi

JAPAN

Kyoto—Imperial University (a part of the medical school is located at Fukuoka)
Tamsui, Formosa—Medical School of Formosa
Tokyo—Imperial University (Tokio Medical College became Medical Department in 1877)

Medical schools are located also at Chiba Sendai Okayama Kanazawa and Nagasaki

MADAGASCAR

Tananarive—L Ecole de Médecine.

MALAYA

Singapore —Malaya Medical School

MEXICO

Mexico —Escuela Nacional de Medicina
Puebla —Colegio del Estado de Puebla
Oaxaca —Instituto de ciensias de Oaxaca
Jalapa.—Facultad de ciencias medicas de Veracruz.
Campeachy —Instituto Campechano de Medicina y Cirurgia.
San Luis Potosi —Escuela de Medicina de San Luis Potosi
Guadalajara —Escuela de Medicina y de Farmacia de Jalisco
Merida —Escuela de Medicina y de Farmacia de Yucatán
Morelia —Escuela de Medicina y de Farmacia de Michoacán

NETHERLANDS

Amsterdam —Universiteit van Amsterdam
Groningen —Rijks Universiteit te Groningen
Leyden —Rijks Universiteit.
Utrecht —Rijks Universiteit

NEW ZEALAND

Wellington —University of New Zealand (affiliated with the University of Cambridge, England)

NORWAY

Christiania —Kongelige Frederiks Universitet.

PERU

Lima —Universidad Mayor de San Marcos

PORTUGAL

Coimbra —Universidade de Coimbra
Lisbon.—Escola Medico-Cirurgica
Oporto —Escola Medico-Cirurgica

ROUMANIA

Bukharest —Universitatea din Bucuresti
Jassy —Universitatea din Jasi

RUSSIA

Helsingfors Finland —Kejserliga Alexanders Universitet
Jurjev (formerly Dorpat) —Imperatorski Jurjevskij Universitet.
Kazan —Imperatorskij Kasanskij Universitet
Kharkof —Imperatorskij Charkovskij Universitet
Kief —Imperatorskij Universitet Sv Vladimira
Moscow —Imperatorskij Moskovskij Universitet
Odessa —Imperatorskij Novorossijskij Universitet.
St Petersburg —Zenskij Medicinskij Institut (Medical High School for Women)
St Petersburg —Shkola Lekarskih Pomostnitz (School for Medical Assistants)
Tomsk, Siberia —Tomskij Universitet
Warsaw —Imperatorskij Varsavskij Universitet.

SCOTLAND

Aberdeen —University of Aberdeen
Dundee —University of St Andrews (University College)
Edinburgh —University of Edinburgh
Edinburgh —School of Medicine of the Royal Colleges (including the Surgeons Hall School)
Glasgow —University of Glasgow (including Queen Margaret College)
Glasgow —Anderson s College Medical School
Glasgow —St Mungo s College and Glasgow Royal Infirmary
Glasgow —Western Medical School

SIAM

Bangkok —Royal Medical College.

SPAIN

Barcelona —Universidad de Barcelona
Cadiz —Facultad de Medicina
Granada —Universidad de Granada
Madrid —Universidad de Central de Espana
Santiago —Universidad
Saragossa —Universidad
Seville —Universidad de Sevilla (To this university also belongs the Medical Faculty at Cadiz)
Valencia —Universidad
Valladolid —Universidad.

SWEDEN

Lund —Kungl Karolinska Universitetet
Stockholm —Karolinska Institutet (Medico-Chirurgical Institute) (This institute has the same chancellor as the universities at Lund and Upsala and is guided by a similar constitution)
Upsala —Kungl Universitetet i Upsala

SWITZERLAND

Basel —Universität.
Berne —Kantonale Universität
Fribourg —Universität
Geneva —Université de Genève
Lausanne —Université
Neu Chatel —Universität.
Zurich —Universität

SYRIA

Beirut —Syrian Protestant College.
Beirut —Université Saint Joseph de Beyrouth.

TURKEY

Constantinople —University of Constantinople (Another medical department of this university is located at Damascus)

URUGUAY

Montevideo —Universidad

WALES

Cardiff —University of Wales (Cardiff School of Medicine)

MEDICAL COLLEGES OF THE WORLD

Nation	Colleges	Nation.	Colleges
Argentine	2	India	5
Australia	5	Ireland	4
Austria	7	Italy	20
Belgium	4	Japan	8
Bolivia	2	Madagascar	1
Brazil	3	Malaya	1
Canada	8	Mexico	9
Chile	1	Netherlands	4
China	8	New Zealand	1
Colombia	1	Norway	1
Cuba	1	Peru	1
Denmark	1	Portugal	3
Ecuador	1	Roumania	2
Egypt	1	Russia	11
England	21	Scotland	8
France	[illegible]	Siam	1
Germany	20	Spain	9
Greece	1	Sweden	3
Guatemala	1	Switzerland	7
Haiti	1	Syria	2
Honduras	1	Turkey	1
Hungary	3	Uruguay	1
Iceland	1	Wales	1

Total medical colleges in all foreign countries	205
Total in the United States alone	116
There are also about 20 sectarian schools in the United States the graduates of which treat diseases giving this country a total of	136

MEDICAL STANDARDS ABROAD COMPARED

The list of foreign medical colleges, on the preceding pages shows a total of 205 such colleges outside the United States while this country alone has 136 All European medical schools are medical faculties of universities or are under the direct control of universities and there are no proprietary or pseudomedical sectarian schools such as are permitted to exist in this country

The information regarding preliminary education as well as collegiate and medical was obtained from original sources and from foreign publications and has been verified in most instances by the American consuls in the different countries

The requirements in twenty five foreign countries are graphically presented in the chart on page 636, where each division of education is shown according to the ages at which students are in attendance The shaded portions of the bands represent primary and secondary education the black portions the medical and the white portions represent the requirements of higher preliminary education including work in physics chemistry and biology The dotted portions *a* for Great Britain and Sweden, indicate the *average* length of time required to graduate in medicine The chart allows valuable comparisons *to be made and as measured by years, shows more of a* uniformity of educational standards than one would expect It is interesting to note how sharply the line representing the age of 18 separates the secondary from higher education

The age at the completion of the medical course in each country, as shown in the chart with one or two exceptions represents the lowest age at which the student can secure the right to practice medicine disregarding the rare exceptions when the student graduates at an earlier age The average age is one or two years higher than is shown in the chart since the regular course of study between the ages of 6 and 24 is often broken by sickness failure to receive promotion or other causes

In the majority of foreign countries secondary education begins from two to five years earlier than in this country and in some countries has no direct connection with the elementary In fact in several European countries in Great Britain and in France for example it appears that the majority of students entering the secondary school secure their elementary instruction from private tutor or in preparatory courses offered by the secondary schools rather than in the regular elementary schools.

The United States and J [illegible] untri [illegible]
in the chart which do [illegible] ry

physics chemistry and biology of every medical student Even the South American countries are ahead of the United States in this respect In some countries named the work is taken in the first one or two years of the medical course, along with the usual medical studies, while in others, notably in France, Belgium and Sweden, it must be taken in a college of science or philosophy In still others, as in Austria and in Great Britain the work may be taken either in a college of liberal arts or in the medical school In France this work was given as a part of the regular medical course until 1893, when it was transferred to the college of science, because the laboratories and trained instructors in those colleges made it certain that the courses would be thoroughly taught

Only one year devoted to the preliminary scientific studies is required by all but two of the countries named or else the work extends through about two years along with regular medical subjects In no instance are more than two years of college work devoted entirely to preliminary study This seems to indicate that the preliminary requirement by a few medical schools in this country of three and four years of college work has no parallel in other countries

In six of the countries named, disregarding rare exceptions, the earliest age at which the right to practice medicine can be secured is 23 In three countries the age limit is 27 or beyond But in the great majority the age limit is 24 and the entire course of elementary, secondary, college and medical education is completed in eighteen years This agrees with the "ideal standard" adopted at Portland, Ore, in 1905 by the American Medical Association, as well as with the so called six year combined course for the degrees of B S and M D, which is being generally adopted in this country

The well known diversity of standards of medical education in the United States at the present time is also shown in the chart Preliminary standards range from a common school education up to the requirement of a college degree Of the 120 colleges in the United States 73 require a four year high school education or less as shown in Groups 1 to 4 17 colleges require one year of college work and 30 colleges are now requiring two or more years of work in a college of arts 44 of these having raised their requirements in the past seven years

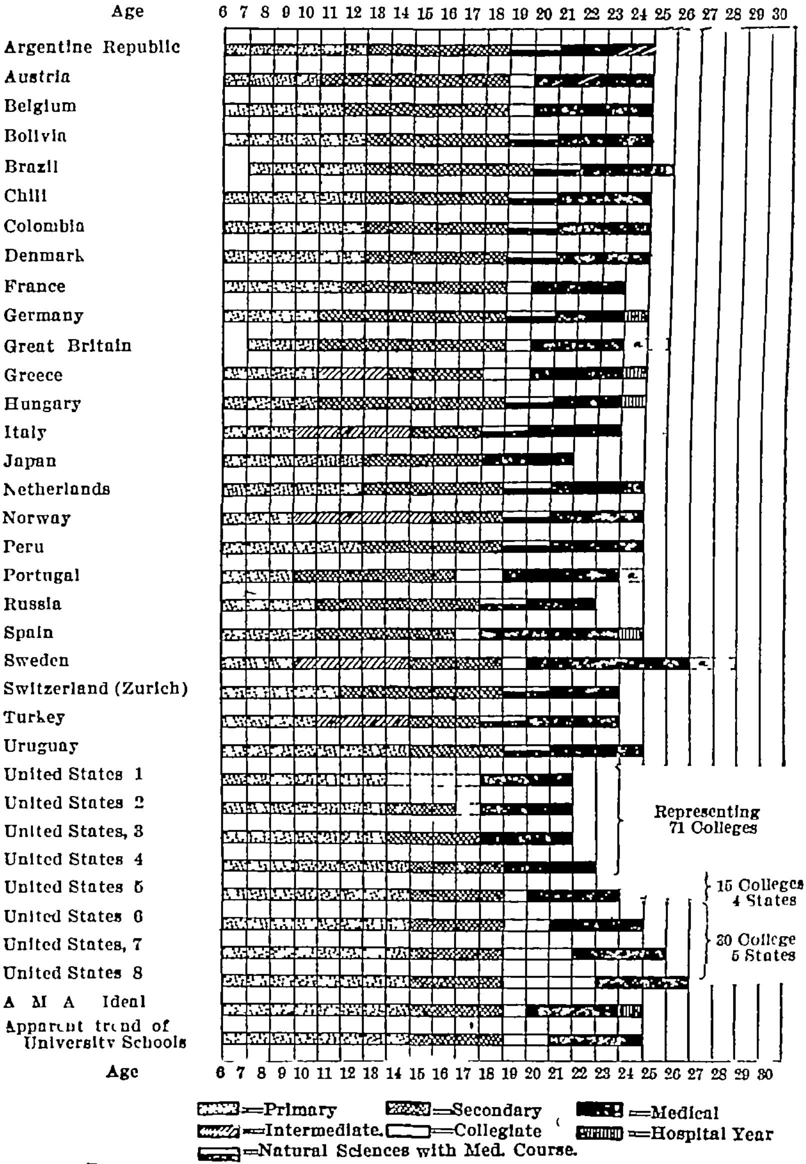
Colleges and States Having Higher Requirements

The thirty medical schools which are now requiring as a minimum for entrance two or more years of work in a college of liberal arts in addition to a four year high school education are as follows

College	Began
Johns Hopkins University Medical Department	1893
Harvard Medical School	1900
Western Reserve University Medical Department	1901
University of Chicago Rush Medical College	1904
University of California Medical Department	1905
University of Minnesota College of Medicine and Surgery	1907
University of North Dakota College of Medicine*	1907
University of Wisconsin College of Medicine	1907
Cornell University Medical College	1908
Wake Forest College School of Medicine*	1908
Leland Stanford Junior University Department of Medicine	1909
Yale Medical School	1909
University of Kansas School of Medicine	1909
University of Michigan College of Medicine	1909
University of Nebraska College of Medicine	1909
University of South Dakota College of Medicine*	1909
University of Colorado School of Medicine	1910
Indiana University School of Medicine†	1910
State University of Iowa College of Medicine†	1910
State University of Iowa College of Homeopathic Medicine	1910
Drake University College of Medicine	1910
University of Missouri Department of Medicine*‡	1910
Dartmouth Medical School	1910
Columbia University College of Physicians and Surgeons	1910
Syracuse University College of Medicine†	1910
University of Pennsylvania, Medical Department†	1910
University of Utah Medical Department*	1910
Northwestern University Medical School§	1911
Georgetown University School of Medicine	1912
Washington University Medical Department	1912

* Offers only two years in medicine
† One year required for the session of 1909 10
‡ One year has been required since 1906
§ One year required since the session of 1908-09

CHART 1—PRELIMINARY AND MEDICAL EDUCATION AT HOME AND ABROAD



a Shows average time required to complete the medical course.

The fifteen following colleges require, in addition to a four year high school course, one year of work in college physics, chemistry and biology

College	In Force
Howard University School of Medicine	1910
Kansas Medical College	1910
Tulane University Medical Department	1910
St Louis University School of Medicine	1910
University of North Carolina School of Medicine*	1910
Ohio-Miami Medical College University of Cincinnati†	1910
University of Oregon Medical Department	1910
University of Texas Medical Department	1910
University of Virginia Department of Medicine	1910
Fordham University School of Medicine	1911
University of Pittsburgh Medical Department	1911
Medical School of Maine	1912

University of Michigan Homeopathic College	1912
University and Bellevue Hospital Medical College	1912
University of Vermont College of Medicine	1912

* Offers only two years in medicine
† Will require two years in 1913 and thereafter

Higher Preliminary Requirements by State Boards

There are now nine state examining boards which have adopted preliminary requirements in advance of a four year high school education. These are as follows

State Examining Board of	No of Years Required	Affects Students Matriculating	Affects All Applicants
North Dakota	2	1907-08	1911
South Dakota	1	1907-08	1911
Iowa	2	1907-08	1911
Minnesota	2	1908-09	1912
Colorado	1	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910 11	1914
Kansas	1	1910 11	1914
Indiana	1	1909 10	1913
Indiana	2	1910 11	1914
Utah	1	1910 11	1914

Several other states are contemplating similar increases in their requirements in the near future

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STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

These standards were prepared by the Council on Medical Education acting under the direction of the House of Delegates of the American Medical Association

Standard Now Recommended

The standard now recommended prerequisite to the practice of medicine is as follows

(A) Preliminary education sufficient to enable the candidate to enter our recognized universities and in addition a course of one or two years devoted to the sciences of physics, chemistry and biology and to modern languages These entrance qualifications are to be passed on by some competent authority not connected with the medical college

(B) Four years in pure medical work, the first two of which should be largely spent in laboratories of anatomy physiology, pathology, pharmacology, etc, and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics and the specialties

(C) A final year as an intern in a hospital or dispensary should then complete the medical course

Under such a scheme the majority of men would begin the study of medicine between 18 and 19 years of age, and would graduate from the hospital internship at from 24 to 25 A college education is recognized as a desirable preparation for a limited number of men, but it is thought that it is not desirable to make such college education a minimum requirement to the study of medicine, this would compel the young medical man to defer the actual beginning of his life's work to an unnecessarily late period—27 or 28 years of age

An Acceptable Medical College

(Revised to July 31 1912)

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress among the medical colleges in the United States It also represents the basis on which medical colleges are rated in the Council's classifications

1 A strict enforcement of all standards and requirements the college itself to be held responsible for any instances where they are not enforced

2 A requirement for admission of at least a four year high school education superimposed on eight years of grammar school work as defined by the College Entrance Examination Board (see schedule next column)

3 Beginning Jan 1 1914, the minimum requirement for admission will be enlarged to include at least one year's college work in physics chemistry and biology and a reading knowledge of at least one modern language besides English preferably German or French

4 A requirement that students be in actual attendance in the college within the first week of each annual session and thereafter

5 That actual attendance at classes be insisted on except for good cause such as for sickness and that no credit be given under any circumstances for less than 80 per cent of attendance on each course

6 That advanced standing be granted only to students of other acceptable colleges and that in granting advanced standing there shall be no discrimination against the college's full course student

Standard High School Course

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO MEDICAL COLLEGES

Based on the requirements of the College Entrance Examination Board

SUBJECTS	UNITS	REQUIRED	ELECTIVE
ENGLISH			
READING AND PRACTICE	2	2	
Study and Practice	1		1
MATHEMATICS			
ALGEBRA TO QUADRATICS	1	1	
ALGEBRA (Quadratic Equations Binomial Theorem and Progressions)	½		½
PLANE GEOMETRY	1	1	
Solid Geometry	½		½
Trigonometry	½		½
GRAMMAR AND COMPOSITION	1	1	
LATIN			
CÆSAR	1	1	4
Cicero	1		1
Virgil	1		1
Cornelius Nepos	1		1
Greek			
Grammar and Composition	1	*	1
Xenophon	1		1
Homer	1		1
German			
Elementary	2	**	2
Intermediate	1		1
French			
Elementary	2	**	2
Intermediate	1		1
Spanish			
Elementary	2	**	2
HISTORY			
UNITED STATES HISTORY	1	1	
Greek and Roman History	1		1
Medieval and Modern	1		1
English	1		1
SCIENCE †			
Botany and Zoology each	½		½
or Biology	1		1
Chemistry	1		1
PHYSICS	1	1	
Physiography	½		½
Physiology	½		½
Drawing	1		1
Music			
Appreciation	1		1
Harmony	1		1
Total	31	8	23

A *unit* is the credit value of 36 weeks work of 5 recitation periods per week each recitation period to be of not less than 40 minutes

Required Branches Of the 14 units of high school work it is suggested that the subjects in capitals aggregating 8 units should be required Other work to the amount of at least 6 units may be made up from any of the other subjects of the above schedule

* Two units of Greek may be substituted for the two required units of Latin

** A reading knowledge of German French or other modern language is recommended in the high school courses of students contemplating the study of medicine without higher preliminary qualifications

† It should be understood that each science course must include laboratory work

7 Careful and intelligent supervision of the entire school by a dean or other executive officer who holds and has sufficient authority to carry out fair ideals of medical education as interpreted by modern demands

8 A good system of records showing conveniently the credentials attendance grades and accounts of the students

9 A fully graded course covering four years of at least 30 weeks each exclusive of holidays and at least [illegible] hours per week of actual work, this course should be clearly set forth in a carefully prepared and printed schedule of [illegible] classes

10 Two years [illegible]
in thoroughly [illegible]

embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis

11 Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence

12 As soon as conditions warrant, a fifth undergraduate year should be required which should be spent by the student as an intern in an approved hospital

13 At least six expert thoroughly trained professors in the laboratory branches, salaried so they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects These professors should have a definite responsibility in the conduct of the college There should also be a sufficient number of assistants in each department to look after the less important details A suggested assignment of these instructors is (a) professor of anatomy, (b) professor of physiology, (c) professor of pathology and bacteriology and (d) professor of physiologic chemistry and pharmacology The other two might be associate or assistant professors, and assigned one to the laboratory course in histology and embryology under the professor of anatomy and the other to the department of pathology and bacteriology

14 The medical teaching should be of at least the same degree of excellence as obtains in our recognized liberal arts colleges and technical schools

15 The members of the faculty with a few allowable exceptions should be graduates of institutions recognized as medical colleges and should have had a training in all departments of medicine They should be appointed because of their ability as teachers and not because they happen to be on the attending staff of some hospital or for other like reasons

16 The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff The hospital should have a sufficiently large number of patients to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so called specialties

17 The college should have easily accessible hospital facilities of not less than 200 patients which can be utilized for clinical teaching (for senior classes of 100 students or less), these patients to represent in fair proportion all departments of medicine

18 The college should have additional hospital facilities for children's diseases contagious diseases and nervous and mental diseases

19 Facilities for at least six maternity cases for each senior student who should have actual charge of these cases under the supervision of the attending physician

20 Facilities for at least 30 autopsies during each college session (for senior classes of 100 students or less)

21 A dispensary or out patient department under the control of the college the attendance to be a daily average of 60 cases (for senior classes of 100 students or less), the patients to be carefully classified good histories and records of the patients to be kept and the material to be well used

22 The college should have a working medical library to include the more modern text and reference books and 30 or more leading medical periodicals, the library room should be easily accessible to students during all or the greater part of the day should have suitable tables and chairs and have a librarian in charge

23 A working medical museum having its various anatomic, embryologic pathologic and other specimens carefully prepared labeled and indexed so that any specimen may be easily found and employed for teaching purposes It is suggested that so far as possible with each pathologic specimen coming from post mortems there also be kept the record of the post mortem, the clinical history of the patient on whom the autopsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen

24 A supply of such useful auxilary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray or other apparatus now so generally used in medical teaching

25 The college should show evidences of reasonably modern methods in all departments and evidences that the equipment and facilities are *being intelligently used* in the training of medical students

26 A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements

Definitions of a Medical College* and a Medical School†

"An institution to be ranked as a medical college must have at least six (6) professors giving their entire time to medical work, a graded course of four full years of college grade in medicine, and must require for admission not less than the usual four years of academic or high school preparation, or its equivalent in addition to the preacademic or grammar school studies"

By a medical school as differentiated from a medical college is meant a part of a university requiring for admission the equivalent of two years of collegiate work and which offers instruction of not less than two years' duration, leading to the degree of Doctor of Medicine

Grading of Medical Colleges

In a similar manner as in the previous classifications, all medical colleges have recently been rated by the Council on Medical Education on a civil service basis on a scale of 1,000 points The data relating to each college were grouped under ten general heads in such manner that the groups would have as nearly equal weight as possible, each group, allowing a possible 100 points (10 per cent) out of a possible 1,000 points (100 per cent) The ten heads under which the data were arranged are as follows

1 Showing of graduates before state boards and other evidences of the training received

2 Enforcement of a satisfactory preliminary educational requirement and the granting of advanced standing

3 Character of curriculum grading of course length of session time allowed for matriculation and supervision

4 Medical school buildings light heat ventilation cleanliness

5 Laboratory facilities and instruction

6 Dispensary facilities and instruction

7 Hospital facilities and instruction maternity work autopsies specialties

8 Faculty number and qualifications of trained teachers full time instructors and assistants especially of the laboratory branches and extent of research work

9 Extent to which the school is conducted for properly teaching the science of medicine rather than for the profit of the faculty directly or indirectly

10 Possession and use made of libraries museums charts, stereopticons etc

Colleges receiving a rating of 70 per cent or above in each and all of the ten divisions of data were included in Class A+, colleges receiving an average of 70 per cent or above, but which receive a rating below 70 per cent in one, two or three of the divisions were included in Class A, colleges receiving an average of between 50 and 70 per cent and colleges having an average of above 70 per cent but which received a rating below 70 per cent in more than three of the divisions above named, were included in Class B, and colleges receiving less than 50 per cent were included in Class C In other words, Class A+ colleges are those which are acceptable, Class A those which need improvement in certain respects, but which are otherwise acceptable, Class B, those which, under their present organization might be made acceptable by general improvements, and Class C, those which require a complete reorganization to make them acceptable

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* This definition of a college is based on that given in the revised ordinances of the State of New York and which was adopted by the Carnegie Foundation for the Advancement of Teaching as a standard

† Based on the definition of the term school adopted in 1900 by the Association of American Universities

Colleges Listed in Classes A+ and A

1 Giving a complete four year course

ALABAMA
  University of Alabama Medical Department
CALIFORNIA
  Leland Stanford Junior University Medical Department (Cooper Medical College)
  University of California Medical Department San Francisco-Los Angeles
COLORADO
  University of Colorado School of Medicine
CONNECTICUT
  Yale Medical School
DISTRICT OF COLUMBIA
  George Washington University Department of Medicine
ILLINOIS
  Northwestern University Medical School
  Rush Medical College University of Chicago
  College of Physicians and Surgeons Chicago
INDIANA
  Indiana University School of Medicine
IOWA
  State University of Iowa College of Medicine
  Drake University College of Medicine
KENTUCKY
  University of Louisville Medical Department
LOUISIANA
  Tulane University of Louisiana Medical Department
MAINE
  Medical School of Maine
MARYLAND
  Johns Hopkins University Medical Department
MASSACHUSETTS
  Boston University School of Medicine
  Harvard Medical School
  Tufts College Medical School
MICHIGAN
  University of Michigan Department of Medicine and Surgery
  University of Michigan Homeopathic College
MINNESOTA
  University of Minnesota College of Medicine and Surgery
MISSOURI
  St Louis University School of Medicine
  Washington University Medical Department
NEBRASKA
  University of Nebraska College of Medicine.
NEW HAMPSHIRE
  Dartmouth Medical School
NEW YORK
  Albany Medical College
  Columbia University College of Physicians and Surgeons
  Cornell University Medical College
  Fordham University School of Medicine
  New York Homeopathic Medical College and Hospital
  Syracuse University Medical Department
  University and Bellevue Hospital Medical College
  University of Buffalo Medical Department
OHIO
  Ohio Miami Medical College Medical Department University of Cincinnati
  Starling-Ohio Medical College
  Western Reserve University Medical Department
OREGON
  University of Oregon Medical Department.
PENNSYLVANIA
  Hahnemann Medical College and Hospital Philadelphia
  Jefferson Medical College
  Medico-Chirurgical College of Philadelphia.
  University of Pennsylvania Medical Department
  Woman's Medical College of Pennsylvania
  University of Pittsburgh Medical Department
TENNESSEE
  Vanderbilt University Medical Department
TEXAS
  University of Texas Medical Department
VERMONT
  University of Vermont College of Medicine
VIRGINIA
  Medical College of Virginia
  University College of Medicine
  University of Virginia Department of Medicine

2 Giving a two year course

MISSISSIPPI
  University of Mississippi Medical Department.
MISSOURI
  University of Missouri Medical Department
NORTH CAROLINA
  University of North Carolina College of Medicine
  Wake Forest College Medical School
NORTH DAKOTA
  University of North Dakota College of Medicine
SOUTH DAKOTA
  University of South Dakota College of Medicine
UTAH
  University of Utah Department of Medicine
WISCONSIN
  University of Wisconsin College of Medicine

3 Medical Schools for the Colored Race

Howard University Medical Department, Washington, D C.
Meharry Medical College Nashville Tenn

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are as follows

SECTION 1—Every college holding membership in this Association shall on and after Jan. 1 1912 require for matriculation a completed or unconditioned medical student's certificate to be granted by a state medical examining and licensing board or a board empowered by statute to grant such certificates or a certificate of entrance to the academic department of any state university or a certificate of entrance to an accredited university or college providing that said certificate is granted on no less than the following requirements

(*a*) A bachelor's degree from an accredited college or university

(*b*) A diploma from an accredited high school normal school or academy requiring for admission evidence of the completion of an eight year course in primary and intermediate grades and for graduation not less than four years of study embracing two years (4 points) of Latin or four years (8 points) of either high school French or German or its full equivalent provided a satisfactory examination is passed in the elements of Latin grammar two years (4 points) of mathematics two years (4 points) of English one year (2 points) of history one year (2 points) of physics and six years (12 points) of further credit in language literature history or science

(*c*) An examination in the following branches totaling 30 points

A Required 16 points	Points
Mathematics—(Minimum 2 years maximum [illegible]) Algebra and plain geometry	4
English—(Minimum 2 years maximum 4 years)	4
(*a*) English grammar	
(*b*) Rhetoric and composition	
Latin—(Minimum *see* (*b*) maximum 4 years)	4
(*a*) Latin grammar	
(*b*) Latin prose composition	
(*c*) Reading four books of Cæsar or equivalent	
Physics—(1 year) With laboratory work	2
History—(1 year) Including civics and political economy	2
Total required	16

B Elective 14 points	Points
English Language and Literature (2 years) Only if taken after the required English	4
Language—German French Spanish or Greek (4 years) not less than one year in any one *see* (*b*)	2
Advanced Mathematics—Solid Geometry and Trigonometry (½ year each)	1
Natural Science (1 year) Biology 1 year or Botany and Zoology ½ year each	2
Physical Science—(1 year) Chemistry	2
Earth Science—Physical Geography and Geology ½ year each	1
Physiology and Hygiene—(½ year)	1
Astronomy—(½ year)	1
Drawing—(½ year)	1

One point in any subject demands one period per week of not less than 45 minutes for 18 weeks

Two points equal 5 counts or 1 unit, or 2 credits

If only 4 hours per week are given in a subject the year's work represents 4 counts (the minimum) and must be counted as such *and not as 5 counts (the maximum)*

SEC 2.—This examination must be conducted by or under the authority of the board of medical examiners of the state in which the college is located or by a duly authorized examiner of the college entrance examination board, or the authorized examiner of an accredited university state or otherwise or by an examiner whose certificates are accepted by accredited colleges or universities or by a method approved by the judicial council of this association

SEC 3.—The term accredited as applied to high schools academies colleges and universities means institutions of that type that have been investigated and are accredited by the state university of their respective states by the North Central Association of Colleges and Secondary Schools the Association of Colleges and Preparatory Schools of the Southern States the Association of Colleges and Preparatory Schools of the Middle States and Maryland the New England College Entrance Certificate Board the Association of American Universities and the Association of State Universities provided that such accrediting is based on Article III Section 1 of this constitution

SEC 4.—Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of the course but no member of this Association shall admit a student to advanced standing without receiving from the dean secretary or registrar of such college a direct written communication certifying to the applicant's standing Credit for time or scholarship cannot be given beyond that of the college issuing the credential except by mutual agreement between the colleges

SEC 5.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years each annual course to have been of not less than thirty-two teaching weeks duration and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course

SEC 6.—No time credit shall be given to holders of a bachelor's degree but subject credit may be given on satisfactory examination Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine

SEC 7.—A college which gives less than a four years' course of study but does not graduate students and [illegible] other required qualifications may be admitted to membership

SEC 8.—Each student shall be obliged to attend not less than 80 per cent of the exercises in every annual course for which he seeks credit No student shall be given credit for an examination unless he attain a grade of at least 70 per cent or its equivalent in any other marking system And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of city where college is located (Census of 1910)	No of students registered 1911 12: Men	No of students registered 1911 12: Women	Graduates 1912: Men	Graduates 1912: Women	Grads with A.B B S or Ph B	No of teachers	Weeks in college year	Total fees (Dollars): 1st year	Total fees (Dollars): 2nd year	Total fees (Dollars): 3rd year	Total fees (Dollars): 4th year	Executive Officer	Session of 1912-13: Begins 1912	Session of 1912-13: Ends 1913	Marginal Number
	ALABAMA		320		66		7										
1	Birmingham Medical College Birmingham	132 685	183		31		1	40	31	103	105	105	130	*E P Hogan M D Secretary*	Sept 25	May 16	1
2	University of Alabama School of Medicine Mobile	51,521	137		35		6	57	32	185	135	135	160	E D Bondurant M D Dean	Sept 23	May 22	2
	ARKANSAS		143	2	51	1	1										
3	University of Arkansas Medical Department Little Rock	45 941	143	2	51	1	1	48	31	125	125	125	150	Morgan Smith M.D Dean	Sept 16	May 9	3
	CALIFORNIA		389	52	98	5	20										
4	Cooper Medical College San Francisco (a)	416,912	35	1	35	1	9										4
5	College of Physicians and Surgeons San Francisco	416,912	15	1	3			39	35	165	160	160	185	Ethan H Smith M D Dean	Sept 4	June 1	5
6	Hahnemann Medical College of the Pacific San Francisco —H	416 912	32	3	4			35	35	155	100	100	100	James W Ward M D Dean	Aug 1	April 20	6
7	Leland Stanford Junior Univ Dept of Med San Francisco (a)	416 912	30	4				51	34	160	160	150	150	R L Wilbur M D Dean	Aug 26	May 14	7
8	Univ of California Med Dept San Francisco-Los Angeles (b)	416,912	78	10	25	2	11	183	36	200	195	190	165	Herbert C Moffitt M D Dean San Francisco	Aug 8	May 10	8
9	California Eclectic Medical College Los Angeles —E	319 198	23	5	4			30	36	125	120	100	125	J A. Munk M D Dean	Sept 16	May 22	9
10	College of Physicians and Surgeons Los Angeles	319 198	115	11	22	2		59	36	160	157	155	182	C W Bryson M D Dean	Sept 9	June 12	10
11	Oakland College of Medicine and Surgery Oakland	150 174	18	4	6			34	36	200	200	175	175	Edward N Ewer M D Dean	Aug 12	May 17	11
12	College of Medical Evangelists Loma Linda	110	43	13				10	36	106	101	101	111	George K Abbott, M D Dean	Sept 26	June 25	12
	COLORADO		110	8	38	1	4										
13	University of Colorado School of Medicine Boulder Denver	213,381	110	8	38	1	4	78	36	75	75	75	75	William P Harlow M.D Dean	Sept 9	June 5	13
	CONNECTICUT		63		29		3										
14	Yale Medical School New Haven	133 605	63		29		3	70	35	220	168	150	163	George Blumer M D Dean	Sept. 26	June 18	14
	DISTRICT OF COLUMBIA		412	5	94	2	15										
15	George Washington University Dept of Medicine Washington	331 069	90	2	35	2	7	75	34	150	150	150	150	William C Borden M D Dean	Sept 25	June 11	15
16	Georgetown University School of Medicine Washington	331 069	155		23		3	62	34	165	150	150	150	George M Kober M D Dean	Sept 27	June 13	16
17	Howard University School of Medicine Washington	331 069	107	3	36		5	42	33	107	102	102	109	Edward A Balloch M D Dean	Sept 25	June 4	17
	GEORGIA		817	4	182	2	12										
18	Atlanta College of Physicians and Surgeons Atlanta	154,839	372		61		8	55	30	125	125	125	150	W S Elkin M D Dean	Sept 18	May 7	18
19	Atlanta School of Medicine Atlanta	154,839	283		45		4	42	29	105	105	105	135	George H Noble M D Dean	Sept 20	May 1	19
20	Georgia College of Eclectic Medicine and Surgery Atlanta —E	154,839	66	4	87	2		19	28	80	80	80	105	Elzie B Thomas M D Proctor	Sept 20	April 13	20
21	Southern College of Medicine and Surgery Atlanta (c)	154,839	20		11			13		70	70	70	90	E O Stuckey M D Dean			21
22	University of Georgia College of Medicine Augusta	41 040	126		38			57	32	100	100	100	125	W H. Doughty Jr M D Dean	Sept 18	May 20	22
	ILLINOIS		2392	180	530	28	141										
23	Bennett Medical College Chicago	2 185,283	359	13	91	2		93	34	185	180	125	130	William F Waugh M D Dean	Oct 1	June 13	23
24	Chicago College of Medicine and Surgery, Chicago	2 185,283	559	27	122	4	7	124	31	120	120	105	120	J F Wyneken M D Registrar	Sept 24	May 19	24
25	College of Physicians and Surgeons Chicago	2 185 283	470	36	131	14	10	128	32	155	155	150	160	William E Quine M D Dean	Oct 1	June 6	25
26	Hahnemann Medical College and Hospital Chicago —H	2,185 283	98	6	33		3	76	32	125	125	155	175	W Henry Wilson M D Registrar	Sept 25	May 23	26
27	Hering Medical College Chicago —H	2 185 283	26	2	6	1	1	53	33	100	100	100	100	E B Beckwith M D Registrar	Sept 24	June 5	27
28	Jenner Medical College Chicago	2 185 283	125	13	10	2		48	38	145	140	120	155	John D Mackellar M D Secretary	Sept 3	June 14	28
29	Northwestern University Medical School Chicago	2 185 283	259		80		25	147	33	200	200	101	185	Arthur R Edwards M D Dean	Oct 1	June 11	29
30	Rush Medical College Chicago	2 185 283	496	63	107	5	95	240	34	185	180	180	195	John M. Dodson M D Dean	Oct 1	June 14	30
	INDIANA		145	10	43	2	9										
31	Indiana University School of Medicine Indianapolis	233 650	145	10	43	2	9	173	35	100	100	130	130	Charles P Emerson M D Dean	Sept 24	June 18	31
	IOWA		186	10	54	2	4										
32	Drake University College of Medicine Des Moines	86 368	45	5	16		1	53	35	165	105	165	165	W W Pearson M D Dean	Sept 18	June 11	32
33	State University of Iowa College of Medicine Iowa City	10 091	106	4	32	2	2	43	36	60	50	50	60	James R Guthrie M D Dean Dubuque	Sept 16	June 13	33
34	State Univ of Iowa Coll of Homeo Med Iowa City —H (d)	10 091	15	1	6		1										34
	KANSAS		106	6	22	1	9										
35	Kansas Medical College Topeka	43 684	35	2	8	1	2	41	35	100	100	100	100	William E McVey M D Dean	Sept 11	June 5	35
36	University of Kansas School of Medicine Kansas City	82,331	71	4	14		7	56	85	60	60	100	110	S J Crumbine M D Dean Topeka	Sept. 18	June 11	36
	KENTUCKY		370		124												
37	Louisville National Medical College Louisville (e)	223,928	17		5												37
38	University of Louisville Medical Department Louisville	223 928	353		119			73	32	135	135	135	160	W Edward Grant, M.D Dean	Oct 1	May 30	38
	LOUISIANA		321		104		22										
39	Tulane University Medical Department New Orleans	339 075	321		104		22	96	32	180	180	180	210	Isadore Dyer M D Dean	Sept. 30	June 4	39
	MAINE		83		11		5										
40	Medical School of Maine Portland	58,571	83		11		5	60	33	120	115	105	105	Addison S Thayer M D Dean Portland	Oct 17	June 25	40

	MARYLAND		1337	41	322	9	85										
41	Baltimore Medical College Baltimore	558,485	109		26			77	33	150	150	150	180	David Streett M D Dean	Sept 20	June 1	41
42	College of Physicians and Surgeons Baltimore	558 485	321		63			66	32	165	165	165	195	William F Lockwood M D Dean	Oct 1	June 5	42
43	Johns Hopkins University Medical Department Baltimore	558,485	326	31	79	6	85	118	33	200	200	200	200	J Whitridge Williams M D Dean	Oct. 1	June 10	43
44	*Maryland Medical College* Baltimore	558,485	172	10	70	3		39	32	111	111	105	135	W S Smith M D Dean	Oct 1	June 1	44
45	University of Maryland School of Medicine Baltimore	558 485	319		75			62	32	155	155	155	185	R. Dorsey Coale M D Dean	Oct 1	June 1	45
	MASSACHUSETTS		725	45	178	14	62										
46	Boston University School of Medicine —H	670,585	78	16	12	6		74	32	142	130	128	125	John P Sutherland M D Dean	Oct 3	June 4	46
47	College of Physicians and Surgeons Boston	670,585	87	2	20			58	35	100	100	100	100	Thomas D Crothers M D Dean	Sept 18	June 11	47
48	Harvard Medical School Boston	670,585	258		61		58	193	35	234	203	200	200	Edward H Bradford M D Dean	Sept 23	June 19	48
49	Tufts College Medical School Boston	670 585	302	27	83	8	4	117	32	155	155	155	155	Frederic M Briggs M D Secretary	Sept. 25	June 1	49
	MICHIGAN		501	26	141	8	31										
50	Detroit College of Medicine Detroit	465 766	172		38		1	124	34	115	120	100	130	F B Walker M D, Registrar	Sept. 25	May 20	50
51	Detroit Homeopathic College Detroit —H (f)	465,766	18	4	4	1											51
52	University of Michigan Dept of Med and Surg Ann Arbor (g)	14,817	227	15	76	6	26	84	35	101	80	105	55	Victor C Vaughan M D Dean	Oct. 1	June 26	52
53	University of Michigan Homeopathic College Ann Arbor —H (g)	14,817	84	7	23	1	4	21	35	101	80	105	55	W B Hinsdale M D Dean	Oct 1	June 26	53
	MINNESOTA		173	10	36	1	23										
54	University of Minnesota Coll of Med and Surg Minneapolis	301 408	173	10	36	1	23	157	35	150	150	100	100	F F Wesbrook M D, Dean	Sept 18	June 12	54
	MISSISSIPPI		102	1	14												
55	University of Mississippi Medical Department Oxford	2,014	44					14	33	100	100			W S Leathers M D Dean	Sept. 19	June 3	55
56	Mississippi Medical College Meridian (f)	23,285	58	1	14												56
	MISSOURI		803	25	216	7	27										
57	University of Missouri School of Medicine Columbia	9 662	36					16	35	70	70			C M Jackson M D Dean	Sept 19	June 11	57
58	Kansas City Hahnemann Medical College Kansas City —H	248,381	36	5	7	3		49	33	125	125	125	125	Moses T Runnels M.D Dean	Sept 3	May 12	58
59	University Medical College Kansas City†	248 381	70		27		1	83	30			100	125	S Grover Burnett, M D Dean	Sept. 9	June 9	59
60	Eclectic Medical University Kansas City	248,381	48	2	12			39	34	100	100	100	100	D R. Alexander, M D Secretary	Sept 4	May 19	60
61	Ensworth Medical College St Joseph	77 403	47		5			35	32	90	95	75	95	T E Potter M D Secretary	Sept 20	May 20	61
62	American Medical College St Louis	687 029	156	16	40	4	4	30	34	130	125	125	130	James Moores Ball M D Dean	Sept 10	June 1	62
63	St Louis University School of Medicine	687 029	271		70		12	109	34	120	120	120	[illegible]	Elias P Lyon M D Dean	Oct 1	June 16	63
64	St Louis College of Physicians and Surgeons	687 029	36	2	11		2	46	32	110	105	100	95	Walter U Kennedy M D Dean	Sept 15	May 17	64
65	Washington University Medical School St Louis	687 029	109		44		8	74	34	155	150	150	155	Eugene L Opie M D Dean	Sept 30	June 12	65
	NEBRASKA		275	15	62	5	12										
66	John A Creighton Medical College Omaha	124 096	187	7	47	4	6	48	32	105	100	100	105	D C Bryant M D Dean	Sept. 1	April 28	66
67	University of Nebraska College of Medicine Lincoln and Omaha	124 096	64	6	9	0	5	60	35	111	100	100	105	Robert H Wolcott, M D Dean Lincoln	Sept. 10	May 30	67
68	Cotner Medical College —E (h)	43,973	24	2	6	1	1	30	34	100	100	100	100	R. H Spradling M D Dean	Sept. 16	May 20	68
	NEW HAMPSHIRE		36		9		2								Aug 6	April 22	
69	Dartmouth Medical School Hanover	2,075	36		9		2	28	34	145	147	125	125	J M Gile, M D Dean	Sept 19	June 21	69
	NEW YORK		2161	65	421	8	82										
70	Albany Medical College Albany	100,253	223		43		3	100	31	130	145	120	130	Willis G Tucker M D Registrar	Sept 18	May 13	70
71	Columbia University College of Phys and Surgs New York	4 766,883	347		86		53	210	33	255	250	250	275	Samuel W Lambert M.D Dean	Sept 25	June 4	71
72	Cornell University Medical College New York City	4 766 883	71	14	9	2	11	153	33	100	185	185	200	J S Ferguson M D Secretary	Oct 2	June 12	72
73	Eclectic Medical College of the City of New York —E	4 766,883	39	6	11	0	1	53	32	164	164	150	150	Samuel A. Hardy M D Dean	Sept 11	May 14	73
74	Fordham University School of Medicine New York City	4 766,883	118		24		3	92	34	200	200	200	200	James J Walsh M.D Dean	Sept 27	June 12	74
75	Long Island College Hospital New York City	4 766,883	412		72		2	106	32	205	200	180	00	Joseph H Raymond M D Dean	Sept 27	June 2	75
76	New York Homeopathic Medical College and Hospital —H	4 766,883	170		27			85	31	165	160	150	180	Royal S Copeland M D Dean	Oct 2	May 28	76
77	New York Medical College and Hospital for Women —H	4 766,883		31		2	2	50	31	155	150	135	155	Helen Cooley Palmer M D Dean	Sept 30	May 24	77
78	University and Bellevue Hospital Medical College New York	4 766,883	4 6		80		2	170	32	200	200	200	200	Egbert Le Fevre M D Dean	Oct 1	June 4	78
79	Syracuse University College of Medicine Syracuse	137,249	86	5	29	4	3	65	33	191	191	151	166	John L Heffron M D Dean	Oct 1	June 11	79
80	University of Buffalo Medical Department Buffalo	423 715	219	9	40	0	2	80	33	185	180	140	140	Herbert U Williams M D Dean	Sept 23	May 30	80
	NORTH CAROLINA		312	2	53	1	7										
81	Leonard Medical School Raleigh	19,218	121		30		5	14	30	57	57	57	67	William Moncure M D Dean	Oct 2	May 15	81
82	University of North Carolina Medical Department Chapel Hill	1 149	54					27	35	115	116			Isaac Hall Manning M D Dean	Sept 9	June 3	82
83	*North Carolina Medical College* Charlotte	34 014	98	2	23	1	2	45	31	107	102	100	120	W O Nisbet M D Dean	Sept 11	May 5	83
84	Wake Forest School of Medicine Wake Forest	1 443	39					14	35	102	102			William Louis Poteat President	Sept 3	May 23	84
	NORTH DAKOTA		12	1													
85	University of North Dakota Med Dept University Grand Forks	12 478	12	1				10	34	50	50			Harley E French M D Dean	Sept 24	June 13	85
	OHIO		725	27	178	8	51										
86	Cleveland College of Physicians and Surgeons Cleveland (i)	560 663	39	2	13	2											86
87	Cleveland Pulte Medical College Cleveland —H	560 663	69	10	12	2		53	33	125	125	125	125	George H Quay M D Dean	Oct 1	June 12	87
88	Western Reserve University Medical Department Cleveland	560 663	135		35		29	89	34	142	135	135	135	F C Waite M D Secretary	Oct 1	June 12	88
89	Eclectic Medical College Cincinnati —E	363,591	84	5	19	0	2	31	30	100	100	100	100	John W Scudder Secretary	Sept 16	May 6	89
90	Ohio Miami Medical College of the University of Cincinnati	363,591	109	4	55	1	13	111	34	130	125	125	150	Paul G Woolley M D Dean	Oct 1	June 14	90
91	Starling Ohio Medical College Columbus	181 511	250	6	35	1	7	80	32	150	135	135	135	William J Means M D Dean	Sept 25	May 28	91
92	Toledo Medical College Toledo	168,497	39		9			49	32	137	132	125	125	L A Brewer M D Dean	Oct 1	May 21	92
	OKLAHOMA		47	4	9	1											
93	Univ of Oklahoma School of Med Norman and Oklahoma City	64,205	47	4	9	1		43	34	55	28	100	105	Robt F Williams M D Dean	Sept 20	June 12	93
	OREGON		120	7	29		3										
94	University of Oregon Medical Department Portland	207 214	61	6	17	0	2	46	32	142	138	107	98	K A J Mackenzie M D Dean	Oct 1	June 1	94
95	Willamette University Medical Department Salem	14 094	59	1	12	0	1	18	32	123	110	83	58	W H Byrd M D Dean	Oct 1	June 1	95

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(*Concluded*)

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of city where college is located (Census of 1910)	No of students registered 1911 12		Graduates 1912		Grads with A B B S or Ph B	No of teachers	Weeks in college year	Total fees (Dollars)				Executive Officer	Session of 1912 13		Marginal Number
			Men	Women	Men	Women				1st year	2nd year	3rd year	4th year		Begins 1912	Ends 1913	
	PENNSYLVANIA		1686	121	472	34	65										
96	Hahnemann Medical College and Hospital Philadelphia —H	1 549 008	116		35		1	80	34	175	175	172	170	William B Van Lennep M D Dean	Sept 23	June 5	96
97	Jefferson Medical College Philadelphia	1 549 008	616		148			134	34	186	182	181	180	Ross V Patterson M D Sub-Dean	Sept 23	June 7	97
98	Medico-Chirurgical College of Philadelphia	1 549 008	341		77		8	102	34	163	159	155	163	Seneca Egbert M D Dean	Sept. 23	June 6	98
99	Temple University Medical Department Philadelphia	1 549 008	73	8	22	3	4	92	34	150	150	150	150	Frank C Hammond M D Dean	Sept 16	June 5	99
100	University of Pennsylvania Department of Medicine Philadelphia	1 549 008	307		124		43	166	35	218	213	210	212	William Pepper M D Dean	Sept 27	June 18	100
101	Woman s Medical College of Pennsylvania Philadelphia	1,549 008		112		30	7	52	34	161	156	154	153	Clara Marshall M D Dean	Sept 18	June 4	101
102	University of Pittsburgh Medical Department Pittsburgh	533,905	173	1	66	1	2	103	35	220	220	220	220	Thomas S Arbuthnot M D Dean	Sept 30	June 25	102
	SOUTH CAROLINA		163	1	64	1	13										
103	Medical College of South Carolina Charleston	58,833	163	1	64	1	13	42	32	100	100	100	100	Robert Wilson Jr M D Dean	Oct 1	June 2	103
	SOUTH DAKOTA		9														
104	University of South Dakota College of Medicine, Vermilion	2 187	9					9	35	60	60			Christian P Lommen B S Dean	Sept 17	June 12	104
	TENNESSEE		1327	8	320	2	24										
105	Lincoln Memorial University Medical Department Knoxville	36,346	95	2	24	1	1	36	20	105	100	100	125	S D Acuff M D Registrar	Oct 1	May 11	105
106	Meharry Medical College Nashville	110,364	331	4	69	1	12	26	30	60	60	60	75	G W Hubbard M D Dean	Sept 11	April 21	106
107	Vanderbilt University Medical Department, Nashville	110,364	392		66		6	65	32	130	130	130	155	Lucius E Burch M D Secretary	Sept 19	May 20	107
108	University of Tennessee College of Medicine Memphis	131 105	153	2	48	0	1	53	30	125	125	125	150	Edward C Ellett M D Dean.	Sept 25	May 15	108
109	Memphis Hospital Medical College Memphis	131 105	319		104		3	40	30	125	125	125	150	W B Rogers M D Dean	Oct 1	May 10	109
110	University of West Tennessee Medical Department Memphis ,	131 105	37		9		1	18	30	55	55	55	65	M V Lynk M D Dean	Sept 16	May 1	110
	TEXAS		345	18	98	1	9										
111	Fort Worth School of Medicine Forth Worth	73,312	71		17			49	30	114	113	108	125	W R Thompson M D Dean	Sept. 30	May 15	111
112	University of Texas Department of Medicine Galveston	36 981	146	16	45	1	6	28	32	61	31	21	6	W S Carter M D Dean	Oct 1	May 31	112
113	Baylor University College of Medicine Dallas	92,104	66	2	20		2	34	32	110	105	100	125	Edward H Cary M D Dean	Oct 1	June 1	113
114	Southern Methodist University Medical Department Dallas (j)	92,104	62		14		1	30	32	110	105	100	125	John O McReynolds M D Dean	Oct 1	May 30	114
	UTAH		12														
115	University of Utah School of Medicine Salt Lake City	92 777	12					11	34	55	55			Charles T Vorhies, M D Dean	Sept 16	May 31	115
	VERMONT		176		47		1										
116	University of Vermont College of Medicine Burlington	20 468	176		47		1	48	36	135	135	135	160	H C Tinkham M D Dean	Sept 25	June 25	116
	VIRGINIA		484		80		11										
117	Medical College of Virginia Richmond	127 628	242		43			67	34	100	100	100	130	Christopher Tompkins, M D Dean	Sept 17	June 3	117
118	University College of Medicine Richmond	127 628	160		35		3	68	33	104	104	104	134	Alfred L Gray, M D Dean	Sept 18	May 29	118
119	University of Virginia Department of Medicine Charlottesville	6 765	82		12		8	32	36	140	140	140	140	R. H Whitehead M D Dean	Sept 12	June 14	119
	WEST VIRGINIA		19														
120	West Virginia University School of Medicine Morgantown (k)	9 150	19					9	36	50	50			John N Simpson M D Dean	Sept 16	June 15	120
	WISCONSIN		340	5	60		3										
121	Milwaukee Medical College	373,857	239	3	48	0	3	70	32	135	135	138	155	Warren B Hill M D Dean	Oct 1	June 2	121
122	Wisconsin College of Physicians and Surgeons Milwaukee	373,857	43		12			56	32	145	140	135	150	T O Phillips M D Dean	Sept 30	May 30	122
123	University of Wisconsin College of Medicine Madison (g)	25,531	58	2				17	35	130	130			Charles R Bardeen M D Dean	Sept 30	June 22	123
	PHILIPPINE ISLANDS		53	4	8	1	1										
124	University of the Philippines Coll of Med and Surg Manila (l)	234 409	53	4	8	1	1	53	36					William E Musgrave M D Dean	July 1	April 1	124
	CANADA		1583	21	261	2	57										
125	Dalhousie University Faculty of Medicine Halifax N S	46 619	63	3	10	0		29	32	75	75	100	100	A W H Lindsay M D Dean	Aug 29	April 24	125
126	Queen s University Faculty of Medicine Kingston Ont	18,874	249		53		12	30	30	105	105	105	105	J C Connell M D Dean	Sept 12	April 30	126
127	Western University Faculty of Medicine London Ont	46,300	125		38			18	30	100	100	100	100	W E Waugh M D Registrar	Sept 16	May 1	127
128	McGill University Medical Faculty Montreal Que	470 480	320		46		15	115	33	160	160	150	154	John W Scane M D Registrar	Sept 30	June 6	128
129	Montreal School of Medicine and Surgery Montreal Que	470 480	162		34			60	34	110	118	126	138	E P Lachapelle M D Dean	Oct. 1	June 20	129
130	Laval University Medical Faculty Quebec Que	78 190	72		10		9	24	34	60	60	60	60	Michael J Ahern M D Dean Quebec	Sept 10	June 1	130
131	University of Toronto Medical Faculty Toronto Ont	376,538	453	15	51	2	19	64	33	150	150	150	150	A Primrose M D Secretary	Oct 1	June 6	131
132	University of Manitoba Manitoba Medical College Winnipeg	136 035	139	3	19		2	50	28	155	150	150	150	H H Chown M D Dean	Oct 1	May 1	132

H Homeopathic E Eclectic * Gives only the first two years of the medical course † Gives only the last two years of the medical course

REFERENCES TO TABLE 1

(a) Cooper Medical College which was taken over by Leland Stanford Junior University in 1908 goes out of existence with the graduation of this class Hereafter Leland Stanford Junior University will teach all four years of the medical course

(b) The University of California gives the first two years of the medical course at Berkeley and the student may take his clinical years either at Los Angeles or at San Francisco

(c) This school has been reported as not in good standing by the Georgia State Board of Medical Examiners

(d) All courses in this school have been consolidated with those of the College of Medicine of the State University of Iowa excepting the two chairs in (a) materia medica and therapeutics and (b) practice

(e) Suspended following withdrawal of recognition by the Kentucky State Board of Health

(f) This college has voluntarily become extinct

(g) Fees given are for non residents rates are lower for residents of the state

(h) Formerly known as the Lincoln Medical College.

(i) This college was merged with Western Reserve University in 1910 but will continue to exist until all students then enrolled shall have graduated

(j) Name of this school recently changed was formerly known as the Southwestern University Medical Department

(k) Last year this institution was closed as a college but was later restored as a school It is stated there was no intention of discontinuing medical teaching

(l) Supported by the Philippine Government no tuition fees charged

Curriculum

Section 1—The entire course of four years shall consist of at least 4 000 hours for each student, and shall be grouped in divisions and subdivided into subjects each division and subject to be allotted the number of hours as shown in the following schedule

Division 1—Anatomy, 710 Hours (18 Per Cent)

	Hours.	Lect Rec Dem	Lab Wk.
(a) Gross anatomy (including applied anatomy)	510	120	390
(b) Histologic and microscopic anatomy	135	30	105
(c) Embryology	75	30	45

Division 2—Physiology and Chemistry, 600 Hours (15 Per Cent)

	Hours	Lect Rec. Dem	Lab Wk
(a) Inorganic chemistry	180	60	120
(b) Organic chemistry	75	30	45
(c) Physiologic chemistry	104	30	75
(d) Physiology	240	140	100

Division 3—Pathology Bacteriology and Hygiene 450 Hours (11 25 Per Cent)

	Hours	Lect. Rec. Dem	Lab Wk.
(a) Bacteriology	135	30	105
(b) Hygiene and general dietetics	45	45	
(c) Pathology	270	60	210

Division 4—Pharmacology, Materia Medica and Therapeutics, 240 Hours (6 Per Cent.)

	Hours	Lect Rec Dem	Lab Wk
(a) Pharmacology	105	40	65
(b) Materia medica and pharmacology	80		
(c) Therapeutics	55		

Division 5—Medicine and Medical Specialties 970 Hours (24 25 Per Cent)

	Hours	Lect Rec Dem	Lab Wk
(a) General medicine (including clinical microscopy)	640		
(b) Pediatrics	150		
(c) Nervous and mental diseases	105		
(d) Jurisprudence ethics and economics	30		
(e) Dermatology and syphilis	45		

Division 6—Surgery and Surgical Specialties 720 Hours (18 Per Cent)

	Hours	Lect Rec. Dem	Lab Wk
(a) General surgery	510		
(b) Orthopedic surgery	45		
(c) Genito-urinary diseases	45		
(d) Eye	60		
(e) Ear nose and throat	60		

Division 7—Obstetrics and Gynecology 300 Hours (7 5 Per Cent.)

	Hours.	Lect Rec Dem	Lab Wk
(a) Obstetrics	195		
(b) Gynecology (including some abdominal surgery)	105		

Colleges may reduce the number of hours in any subject not more than 20 per cent. provided that the total number of hours in a division is not reduced. Where the teaching conditions in a college are best subserved the subject may be for teaching purposes transferred from one division to another When didactic and laboratory hours are specified in any subject laboratory hours may be substituted for didactic hours.

Sec 2—Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college arranged both by subjects and years

Sec 3—Each college in membership in this Association shall print annually a list of its students by classes

MEMBERS OF ASSOCIATION

Leland Stanford Junior University Department of Medicine
University of California Medical Department
University of Southern California Medical Department
University of Colorado School of Medicine
Yale Medical School
Georgetown University School of Medicine
George Washington University Department of Medicine
Howard University Medical Department
Northwestern University Medical School
University of Illinois College of Medicine
Indiana University School of Medicine
Drake University College of Medicine
State University of Iowa College of Medicine
Washburn College Medical Department
University of Kansas School of Medicine
University of Louisville Medical Department
Medical Department of Tulane University
Baltimore Medical College
College of Physicians and Surgeons Baltimore
Johns Hopkins University Medical Department
University of Maryland School of Medicine
Medical School of Harvard University
Tufts College Medical School
Detroit College of Medicine
University of Michigan Department of Medicine and Surgery
University of Minnesota College of Medicine and Surgery
University of Mississippi Medical Department.
St Louis University School of Medicine
University Medical College
University of Missouri School of Medicine
Washington University Medical Department
John A Creighton Medical College Medical Department
University of Nebraska College of Medicine
Cornell University Medical College
Syracuse University College of Medicine
University and Bellevue Hospital Medical College
University of Buffalo Medical Department
University of North Carolina Department of Medicine
Wake Forest College School of Medicine
University of North Dakota College of Medicine
Ohio-Miami Medical College of the University of Cincinnati
Starling Ohio Medical College
Western Reserve University Medical Department
State University of Oklahoma School of Medicine
University of Pennsylvania Medical Department.
Meharry Medical College
Vanderbilt University Medical Department
University of Vermont College of Medicine
Medical College of Virginia
University College. of Medicine
University of Wisconsin College of Medicine

The secretary treasurer of the Association is Dr Fred C. Zapffe, 3431 Lexington Street, Chicago

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COLLEGE NOTES

Colleges Closed During the Year—Seven medical colleges have been closed during the year Four were closed by merger into other medical schools and three became extinct The colleges are

Cooper Medical College San Francisco The last class was graduated this year and the final step of the transfer of the property to the Leland Stanford Junior University Medical Department has been consummated

Hospital College of Medicine Eclectic Atlanta Ga merged into the Georgia College of Eclectic Medicine and Surgery

State University of Iowa College of Homeopathic Medicine Iowa City All chairs excepting the two relating to homeopathic materia medica therapeutics and practice have been merged with those of the College of Medicine

Louisville National Medical College Colored Louisville Ky Became extinct following the withdrawal of recognition by the Kentucky State Board of Health

Detroit Homeopathic College Detroit Mich Voluntarily became extinct.

Mississippi Medical College Meridian Miss Voluntarily became extinct

Barnes Medical College St Louis Mo Merged with the American Medical College retaining the latter name

New and Revived Colleges—One new college, the Southern College of Medicine and Surgery, Atlanta Ga, was organized during the year Two other colleges reported to have suspended have been revived These are the University Medical College of Kansas City, Mo, and the School of Medicine of West Virginia University There has been a net reduction during the year of four colleges, the total now being 116

Endowments, New Medical Buildings, Etc

Alabama—During the year the Medical College of Alabama, Mobile, spent $5 000 for an addition to the laboratory and dispensary building The Mobile City Hospital is to be remodeled and enlarged at a cost of about $50 000

California—The College of *Medical Evangelists, Loma* Linda, completed its new laboratory building and received about $8,000 toward the erection of a teaching hospital and for other purposes

—The delegates of the College of Medical Evangelists in conference at Loma Linda, March 30, 1912 voted $125 000 for improvements during the coming year About $40 000 of this is to be spent for the beginning of a teaching hospital

—Leland Stanford Junior University Department of Medicine San Francisco has just completed a new building for the Lane Medical Library at the expense of about $140 000 A gift of $10 000 for this library was received from Dr Adolph Barkan for a special library on the diseases of the eye ear, nose and throat Another gift of $5 000 for the library was received from Mr Charles C Stanford The Nurses Home is being remodeled The school has received an additional sum of $63 750 for endowments

Connecticut.—Yale Medical School received $15 000 from an anonymous donor to be added to the fund for the support of the university clinic

District of Columbia—Howard University School of Medicine Washington has received $10 000 during the year for additional laboratory supplies and equipment

Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Number
		Alabama 498	Arizona 9	Arkansas 251	California 341	Colorado 138	Connecticut 231	Delaware 32	Dist of Col 122	Florida 158	Georgia 749	Idaho 25	Illinois 1388	Indiana 454	Iowa 404	Kansas 317	Kentucky 293	Louisiana 288	Maine 150	Maryland 311	Massachusetts 712	
1	Birmingham Medical College Birmingham	157		1						3	3						1	4				1
2	University of Alabama Medical Dept Mobile	124								1								2				2
3	University of Arkansas Med Dept Little Rock			118	1								1			4	1	2				3
4	College of Phys and Surgs San Francisco				7									1		1					1	4
5	Hahnemann Medical College of the Pacific—H				35																	5
6	Leland Stanford Junior University Dept of Med				57									1	1							6
7	Univ of California Med Dept San Fran L A				82								1									7
8	California Eclectic Medical Coll Los Angeles—E				23						1			1								8
9	College of Physicians and Surgeons Los Angeles		1		21	1	2		1				8	4	15	3	2				4	9
10	Oakland Coll of Medicine and Surgery Oakland				19											1						10
11	College of Medical Evangelists Loma Linda				12	1			2				1	1	1	1		1				11
12	Univ of Colorado School of Med. Boulder Denver				1	81	1			1	1	4	1	4	3	1		1				12
13	Yale Medical School New Haven						39						1			1			1		4	13
14	George Washington Univ Dept of Med			1	2		3		50				3		1				2	3	1	14
15	Georgetown University School of Med				1	1	10		48	1			1				2		2	6	28	15
16	Howard University School of Med Washington	5		2			1	1	18	5	7		2				8	2		9	1	16
17	Atlanta College of Phys and Surgs Atlanta	34			1					33	225						2	3				17
18	Atlanta School of Medicine Atlanta	9								10	173							2			1	18
19	Georgia College of Eclectic Med and Surg—E *	2								6	61											19
20	Medical College of Georgia, Augusta	1					1			9	98											20
21	Southern College of Medicine and Surgery Atlanta										20											21
22	Bennett Medical College Chicago	1		6					6	3	1	1	224	10	4		4	1		1		22
23	Chicago College of Medicine and Surgery Chicago	4	2	5	3	6	1			4	6		186	42	19	4	5	6	6		2	23
24	College of Physicians and Surgeons Chicago					3			1	1		2	250	32	28	8	2				1	24
25	Hahnemann Med Coll. and Hosp Chicago—H				1	2						1	53	9	11	8	1		1		3	25
26	Hering Medical College, Chicago—H												12	4	2		4					26
27	Jenner Medical College Chicago	1		1		1							38	6	7	8	1				1	27
28	Northwestern University Medical School Chicago	2		1		4				1	2		97	9	22	11		1			1	28
29	Rush Medical College Chicago		1	2	4	4	4			1	2	5	200	23	33	19	1	9			4	29
30	Indiana University School of Med Indianapolis			1										148								30
31	Drake University College of Medicine Des Moines												4		35							31
32	State University of Iowa Coll. of Med Iowa City												1		96		1					32
33	State University of Ia Coll of Homeo Med—H														12							33
34	Kansas Medical College Topeka			1												35						34
35	University of Kansas School of Med Kansas City											1			1	67						35
36	Louisville National Medical College Louisville															17						36
37	University of Louisville Med Dept Louisville	4	1	4						5	7		17	67	5	3	115	8				37
38	Tulane University Medical Dept New Orleans	32		12						10	10		1	1			3	146			1	38
39	Medical School of Maine Portland						3												70		4	39
40	Baltimore Medical College Baltimore	2			1		11	1					1						2	23	15	40
41	College of Physicians and Surgeons Baltimore				1		23		1	3	2		1							41	21	41
42	Johns Hopkins Univ Med Dept. Baltimore	8		4	14		12		3	1	22	1	9	8	9	8	12	4	3	53	12	42
43	Maryland Medical College Baltimore	1					8	1	2		1			1						47	5	43
44	University of Maryland School of Medicine	5	1	1			7	4	3	7	9			1				1	2	118	1	44
45	Boston University School of Medicine—H						2									1			8		55	45
46	College of Physicians and Surgeons Boston																				89	46
47	Harvard Medical School Boston	1			13	7	3				1		6	2	3	3	1		20		110	47
48	Tufts College Medical School Boston						12				2		1		1				10		260	48
49	Detroit College of Medicine Detroit													4								49
50	Detroit Homeopathic College Detroit—H																					50
51	Univ of Michigan Dept of Med and Surg	8			8				1		3		7	10	2	2	2				3	51
52	Univ of Michigan Homeo Coll Ann Arbor—H						1		1				3	2	1	1			1	1	1	52
53	Univ of Minnesota Coll of Med and Surg				1								3		5							53
54	University of Mississippi Medical Dept Oxford																	1				54
55	Mississippi Medical College Meridian *	5																1		1		55
56	University of Missouri Medical Dept Columbia																					56
57	Kansas City Hahnemann Medical College—H														3	14						57
58	University Medical College Kansas City					1							4	1	2	30	2	1				58
59	Eclectic Medical University Kansas City*			1											1	13						59
60	Ensworth Medical College St Joseph			1									1		8	9						60
61	American Medical College St Louis			3						2			50	2	3	5	2				1	61
62	St Louis University School of Medicine	1	1	2	2	5	2				1	2	66	9	10	7	2	1			1	62
63	St Louis College of Physicians and Surgeons			2									11	1			2					63
64	Washington University Medical Dept St Louis	1		1	1								17	8	1	6		1				64
65	Creighton Medical College Omaha				1	1	1					2			20	4						65
66	Univ of Nebraska Coll of Med Lincoln Omaha					1							[illegible]		8	1						66
67	Cotner Medical College—E																					67
68	Dartmouth Medical School Hanover						3												1		18	68
69	Albany Medical College Albany						1														8	69
70	Columbia University Coll. of Phys and Surgs	2		1	2	4	10		1	1	1		1	1			2		4	1	3	70
71	Cornell Univ Medical College New York City				4									1	2						2	71
72	Eclectic Med Coll of the City of New York—E						1				1								1			72
73	Fordham Univ School of Med New York City				1		5	1		1				1							1	73
74	Long Island College Hospital New York City						0														2	74
75	New York Homeo Med Coll and Hosp—H				2		4		1		2		1	1						1	2	75
76	New York Med Coll and Hosp for Women—H																					76
77	Univ and Bellevue Hosp Med Coll New York				2	1	10	1		2	1		1				1				5	77
78	Syracuse University College of Medicine Syracuse				1			1														78
79	University of Buffalo Medical Dept Buffalo												1	2								79
80	Leonard Medical School Raleigh	4						1	1	8	5						2					80
81	Univ of North Carolina Med Dept Chapel Hill									2												81
82	North Carolina Medical College Charlotte																					82
83	Wake Forest School of Medicine Wake Forest																1					83
84	University of North Dakota Medical Dept																					84
85	Cleveland Pulte Medical College Cleveland—H																1					85
86	Western Reserve Univ Med Dept Cleveland	1											3	6	2	3	1					86
87	Eclectic Medical College Cincinnati—E			5	1	1					2		1	0			3					87
88	Ohio-Miami Med. Coll of the Univ of Cincinnati				1	2								2		1	17				2	88
89	Starling Ohio Medical College Columbus												1	4			1				1	89
90	Toledo Medical College Toledo																					90
91	University of Oklahoma School of Med Norman						1				2		3	3	3	[illegible]	2					91
92	University of Oregon Medical Dept Portland					1								1		2						92
93	Willamette University Medical Dept Salem																					93
	•	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H Homeopathic E Eclectic * Total exact distribution based on that of 1910-11.

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Number	Michigan 435	Minnesota 295	Mississippi 406	Missouri 558	Montana 28	Nebraska 315	Nevada 3	New Hampshire 63	New Jersey 428	New Mexico 8	New York 2109	No Carolina 491	North Dakota 53	Ohio 818	Oklahoma 103	Oregon 149	Pennsylvania 1529	Rhode Island 96	So Carolina 350	South Dakota 77	Tennessee 525	Texas 612	Utah 69	Vermont 127	Virginia 448	Washington 63	West Virginia 217	Wisconsin 430	Wyoming 14	Philippines etc. 50	Foreign 690	Totals 18 412	Number
1			5																		3	1					1			1	3	183	1
2			8																	1					1							137	2
3				4							1				10							3										145	3
4											2											1									3	16	4
5																																35	5
6				1		1	1				1					1							2	2		2						70	6
7		1					1		1																			1			1	88	7
8				1		1																									1	28	8
9	5	4		8		5		1	3		6			2		1	4				2						1	3			10	120	9
10	1						1																									12	10
11	3	1			1	5				1	3			1		2	1					5				2		1			10	56	11
12	1	2		1		3					2			1	1			1				1				1	1	1	1		2	118	12
13								1	2		5			8			2	2						1							1	63	13
14		2				1		1	1		6	3		4	2		6	1	1		2	1		1	10		1				3	92	14
15	1		1						5		8	1		2	1		11	8			1				1	1	2	1		1	10	155	15
16			1	4	1				5		7	13	1	6			6	2	11		4	4			25						24	170	16
17			11								5	4					1	1	35		8	4			1	1					3	372	17
18			9								1	7			1		1		9					2							2	233	18
19																						1										70	19
20		1									1								15													126	20
21																																20	21
22	20	8	4	3		9			6		9	2		6		1	6	1	1	1		2	1			1	1	95		13	20	402	22
23	14	8	2	10	1	9		1	4	3	22	3	8	11	3	2	22	3	1	6	8	4	4	7	5	7	8	32	2	12	27	566	23
24	22	23		3	4	9					2		8	7	2	1	2	1		13	2	2	2		3	7		38		3	23	506	24
25	2		1		1	2					1		1	2			1	1					1	1				3			2	104	25
26											1			1		1												1			2	28	26
27	1	1	2	1					1		10			4					1		2	1			1		3	1			50	138	27
28	4	17		4	2	5				1			5	8	3	4				11	1		7		1	4	1	12	1	1	6	259	28
29	16	13	2	21	3	21		1	1		8		7	30	2	6	4			10	10	7	17	2	5	9	1	30	3	2	16	550	29
30											1			2	1						1										1	155	30
31		1		2	1	1					1					1	1					1				1					1	50	31
32		3			1								1							1						2		1			3	110	32
33		1				3																										16	33
34						1																										37	34
35				6																												75	35
36																																17	36
37	2		11	6		1			3	1	5	3	1	3	5	1	6		1		11	19			3	1	20	2			3	353	37
38			40	6								2			9				2		2	39						1		1	3	321	38
39								4			1																				1	83	39
40								4	10		22	8		2		1	42	5	3		1	2			6		5				32	190	40
41		1	1						15		17	[illegible]		4			57	11	2		1	1	10		7	1	65	2			[illegible]	391	41
42		3	8	7	1	2		2	6		26	11	1	20		8	31	1	5	3	2	5	2	1	15	8	6	8	1	1	5	357	42
43								2	14		8	3		1			85	3	3		1				6		21			14	5	182	43
44			1						12		6	45		1			19	3	30			1			10		3			1	18	310	44
45								5	1		8						2	3						2	1						11	91	45
46																																89	46
47		2		4	1	2		5	1		15	1	1	7		1	10	15		1	1	3	1	3		2	1		1	4	6	238	47
48								12			4			1				10						2							8	329	48
49	140	1									8			3		1										1					19	172	49
50	20																					1									1	22	50
51	110			2	1	2			4		24		1	23		1	9		1	3	1			1	2	4	1	2		8	6	[illegible]	51
52	40	1									15			12		3	5										1				2	91	52
53		154				1							7	1						4						4		3				183	53
54			43																													44	54
55			51																			1										59	55
56				33		1														1		1										36	56
57				14		2									6							2										41	57
58	1			21		2								1						1											3	70	58
59				30							1				3							1										50	59
60				32		1																										47	60
61		1	2	86		1			1		1				5							3								1	3	172	61
62	4	3		110	1	3					5			8	8		2	1				1				4		4			5	271	62
63			1	14							2				1						1	3										38	63
64	2			68		1								3								2						1		1		109	64
65	3	7		6	1	123					1		1	1			2			5			1					1	2		2	194	65
66				1		57														1									1			70	66
67						26																										26	67
68								11	4															4								[illegible]	68
69									2		207								1					2							2	213	69
70			5	3		1		1	38		217	6		7	1	3	14	1	3			2	1	1	1	2					8	[illegible]	70
71									4		60	1		4	1		1	1		1	1					1					1	[illegible]	71
72									1		38						2														1	[illegible]	72
73	1								8		[illegible]						4								1					4	2	119	73
74									17		[illegible]																				[illegible]	[illegible]	74
75	1								23		112		1			1	4	2			1	1		2				1			[illegible]	170	75
76									2		29																					31	76
77		1		1				1	93		338			5	1		1	2					1	1	1	1		1			4	[illegible]	77
78									2		79			1			4											1			[illegible]	91	78
79	1										212			4			6														[illegible]	[illegible]	79
80			1						2		4	41					4		18			2			15						13	101	80
81									1			48							2						1							[illegible]	81
82												[illegible]							5												3	[illegible]	82
83												[illegible]							2						1							[illegible]	83
84					1								12																			13	84
85														54			24															[illegible]	85
86	2	1	1		1	1					2			132	1		11		2				1				3				2	[illegible]	86
87	1			2		2			1		1			45	1		[illegible]				1	1					[illegible]					[illegible]	87
88											2			78			2					1									2	[illegible]	88
89		1			1						1		1	[illegible]			9									1					3	[illegible]	89
90	2													30														1				[illegible]	90
91			1	4		1								1	3				1			13					4				2	[illegible]	91
92																48										14					1	[illegible]	92
93																56										4						[illegible]	93
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Number
		Alabama 408	Arizona 9	Arkansas 251	California 841	Colorado 138	Connecticut 231	Delaware 32	Dist of Col 122	Florida 158	Georgia 749	Idaho 25	Illinois 1338	Indiana 454	Iowa 404	Kansas 317	Kentucky 298	Louisiana 288	Maine 150	Maryland 311	Massachusetts 712	
94	Hahnemann Medical College and Hospital—H						1	2							1							94
95	Jefferson Medical College Philadelphia	4		5	8		13	0		2	5	3	5	8	10	8	11	2	3	1	10	95
96	Medico-Chirurgical College of Philadelphia	1			1		5	3	1				1					1		1		96
97	Temple University, Medical Dept Philadelphia							1														97
98	University of Pennsylvania Dept of Med	1			2	1	2	6		3	8	2	2	4	1	2	5	2	4	1	5	98
99	Woman s Medical College of Pennsylvania				2	2	3						1		2	1		2			5	99
100	University of Pittsburgh Med Dept Pittsburgh																					100
101	Medical College of South Carolina Charleston									3	2											101
102	Univ of South Dakota Coll of Med Vermillion																					102
103	Lincoln Memorial Univ Med Dept. Knoxville					1											12					103
104	Meharry Medical College Nashville	20		12		1				9	44		1	2		7	8	14		1		104
105	Vanderbilt University Med Dept Nashville	26	1	5	6	1				4	11		7		1	1	42	18				105
106	University of Tennessee Coll. of Med Memphis	6		10	1		1			2	1		5			1	5	8				106
107	Memphis Hospital Medical College Memphis	22		35		1				2	2		1		1		7	44				107
108	Univ of West Tennessee Med Dept Memphis			2						4	3							3				108
109	Fort Worth School of Medicine Fort Worth	1			1																	109
110	University of Texas Dept of Med Galveston										1					1		1				110
111	Baylor University College of Medicine Dallas			2																		111
112	Southern Methodist University Med Dept Dallas				1																	112
113	Univ of Utah School of Med Salt Lake City					1																113
114	Univ of Vermont College of Med Burlington						15					1							9		21	114
115	Medical College of Virginia Richmond				1						1		1	1						1		115
116	University College of Medicine Richmond	2	1							1	2											116
117	Univ of Virginia Dept. of Med. Charlottesville	5		3		1				1	2									1	1	117
118	West Virginia Univ Coll of Med Morgantown																					118
119	Milwaukee Medical College					1							8		3	2						119
120	Wisconsin Coll of Phys and Surgs Milwaukee			1	1								3		1							120
121	University of Wisconsin Coll of Med Madison								1				3	1			1					121
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H. Homeopathic E Eclectic * Total exact distribution based on that of 1910-11

—Georgetown University School of Medicine spent about $50,000 during the year in the erection of a maternity department and a dispensary of the Georgetown University Hospital

—George Washington University Department of Medicine received $10,000 during the year for endowment

Georgia—The University of Georgia Medical Department has adopted plans for the new city hospital on an estimate of $240,000 The teaching facilities of this hospital will be entirely controlled by the medical school On March 6, 1912, all property of the Medical College of Georgia, Augusta, was transferred to the University of Georgia This school announces that beginning Jan 1, 1914, two years of collegiate work will be required of every student for admission.

Illinois—Two new additions have been built to the Presbyterian Hospital of Chicago, the teaching facilities of which are controlled by Rush Medical College, one at a cost of $300 000 and the other, the Memorial Hospital for Children, at a cost of $150,000

—Northwestern University has purchased property adjacent to the Medical School to provide for future extension, expending therefor $160,000

Indiana—Dr William Flynn, of Marion, Ind., formerly a member of the faculty of the Indiana Medical College, has willed his entire estate, valued at $30,000, to the Indiana University School of Medicine A new city dispensary has been opened at this medical school to care for the sick poor of Indianapolis In connection with this dispensary Dr Charles P Emerson has organized a social service department

Iowa—Drake University College of Medicine, Des Moines, has completed a new addition to the medical building at a cost of $25 000

—A new wing to the University Hospital of the State University of Iowa College of Medicine, Iowa City, is rapidly approaching completion at a cost of about $125,000 It is expected to be ready for occupancy by September first next

Kansas—By the will of the late Dr J E Robinson, the first Governor of the State of Kansas, and since the death of his widow, his entire estate, valued at from $80 000 to $120 000 has been left to the University of Kansas According to the wish of Dr Robinson the income from this gift will be used in the development of the medical school

Louisiana—Tulane University Medical Department, New Orleans, has received pledges and gifts to the amount of about $29,000 for the new Department of Tropical Medicine, Hygiene and Preventive Medicine Small gifts amounting to about $1,800 have been received for the departments of pathology, physiology and internal medicine

Maine—The Medical School of Maine, Portland, has received a sum of $40,000 for endowments and $23,000 for a teaching hospital By the will of the late Dr Albion S Whitmore, of Boston, his medical library was bequeathed to tne Medical School of Maine

Maryland.—Subscriptions to the pathological endowment fund for the University of Maryland, School of Medicine have been received amounting July 1, 1912, to $10,056 An effort is being made to raise $100,000 for that fund

—The Baltimore Medical College received a sum aggregating $39,000, for improvements to the Maryland General Hospital Of this sum $19 000 was given by the State of Maryland, $10 000 by the City of Baltimore, $5,000 by the Hospital Auxiliary Association and $1,500 from other sources Improvements to the college building are to be made at a cost of $35,000

Massachusetts—The Boston University School of Medicine, Boston, received $6,000 during the year for endowments The new Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine was dedicated in March, 1912 It was erected as a part of the Massachusetts Homeopathic Hospital as a memorial to the late Robert Dawson Evans by his widow

—Harvard University Medical School has recently established a special Graduate School of Medicine with Dr Horace D Arnold as its dean This promises a new plane for post graduate medical teaching in this country

Michigan.—The University of Michigan, Department of Medicine and Surgery, Ann Arbor, spent about $20,000 in improvements to the University Hospital

Minnesota.—The University of Minnesota College of Medicine and Surgery, Minneapolis, has completed and equipped an anatomy building at a total expense of $310,000 The New Millard Hall has also been completed which, with its equipment, costs $326,000 Valuable gifts to the medical

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Number	Michigan 435	Minnesota 295	Mississippi 406	Missouri 556	Montana 23	Nebraska 315	Nevada 3	New Hampshire 63	New Jersey 428	New Mexico 8	New York 2100	No Carolina 491	North Dakota 68	Ohio 818	Oklahoma 103	Oregon 149	Pennsylvania 1629	Rhode Island 96	So Carolina 359	South Dakota 77	Tennessee 525	Texas 642	Utah 69	Vermont 127	Virginia 448	Washington 93	West Virginia 217	Wisconsin 430	Wyoming 14	Philippines etc. 56	Foreign 600	Totals 18 412	Number
94									11		8			1			90	1							2	1		1			1	116	94
95	1	2	8	4	2	6		2	53		19	29		23		4	305	8	9		4	3	3	6	4	4	4	1	1	6	8	616	95
96								1	24	1	6			1			263	1				2	8	1				3		4	17	341	96
97			1						6		1						60							1							11	81	97
98	1	2	2	1		8			20		17	9		8		1	212	2	2		2	4	1		5	5	2	6		2	14	367	98
99	1	1		1	1			1	10		17	1		4			86	1	2			1		1		1					15	112	99
100									1					1			169										3					174	100
101											1	2							154						1						1	164	101
102																				9												9	102
103								1				4		1					2		70				5					1		97	103
104			86	9								9		1	6				13		61	65			4		2				20	335	104
105			22	10	2				1		2	6			5				5		180	37			2						2	392	105
106			23	2								1			4						77	6			1						1	155	106
107			97	2											9						65	80			1							319	107
108			4									4			1		1		3		4	3			2		1				2	37	108
109															3							66										71	109
110																						159										162	110
111				1											2						1	62										68	111
112															1							60										62	112
113																							11									12	113
114								11	3		21						2	3						83							7	176	114
115		1							4		9	39					8		5		1	1			163	1	6		1		3	242	115
116									1		2	44		1			1		2						90		8				5	160	116
117			6								1	9							7		2				86		4			1	2	82	117
118																	5										13			1		19	118
119	12	26		1									4	4	1		1			2								100		3	14	242	119
120		1																		2								31			3	43	120
121										1	1		2							1								49				60	121
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

library have been received, aggregating to the value of about $5,000 These were given by Drs Charles A Wheaton, Charles L. Green, J E Moore and others

Missouri—During the year the St Louis University School of Medicine has received gifts for various purposes amounting to $8,210 A new dispensary has been opened at the Sisters of St Mary's Infirmary, the clinics to be placed in charge of the St Louis University School of Medicine

—The contract for the new Barnes Hospital building on Kingshighway has been awarded for $808,000 This is to be the teaching hospital of the Washington University, School of Medicine

Nebraska—The University of Nebraska College of Medicine is erecting a laboratory building on the new medical college campus at Omaha, for which an appropriation of $100,000 was made by the State Legislature a year ago

—The Cotner Medical College is making an effort to raise money for a new medical college building It is reported that about $10,000 has already been subscribed for this purpose

New York.—The trustees of the Syracuse University College of Medicine have authorized the building of a college dispensary to cost $75,000 The building will be erected during the coming year

—It is reported that the New York Medical College and Flower Hospital has received $108,000 during the year for general purposes

—The old penitentiary grounds at Albany have been transferred to the trustees of the Albany Medical College as a site for a new medical college building which must be erected within the next three years

—The New York Board of Regents adopted a resolution requiring that after Oct 1, 1912, no medical college would be registered in that state as maintaining a proper medical standard unless it had at least six expert, full time, salaried instructors

North Carolina—The Leonard Medical School, Raleigh has recently completed a new hospital at a cost of $20 000 A three story addition has also been made to the college building at a cost of about $2,000 Various gifts amounting to about $5,000 were received during the year

—The University of North Carolina Medical Department, Chapel Hill, has recently completed a new and commodious medical laboratory building at the cost of $50,000 It was dedicated May 8, 1912, when Mr Edgar F Smith provost to the University of Pennsylvania, gave the principal address

Ohio—It is reported that the Eclectic Medical College of Cincinnati has received endowments during the year to the amount of $16,300

—During the year about $290,000 have been added to the endowments for Western Reserve University Medical Department, Cleveland In addition to this subscriptions have been received amounting to $450,000, these being payable within the next two years Sufficient was received to complete the $1 000,000 raised for the additional endowment for the medical school.

Oklahoma—The new hospital for the State University School of Medicine, was opened Jan 17, 1912 It was formerly the Rolater Hospital, which was leased for three years, enlarged and remodeled It will accommodate sixty patients

Pennsylvania—During the year the Jefferson Medical College received by gift, the Daniel Baugh Institute of Anatomy, fitted and equipped, representing a total value of $150,000 The sum of $14,000 was received for a new teaching laboratory of clinical medicine Various sums aggregating $90 000 have been received for endowment and extensions to the Jefferson Hospital About $100,000 was received for the maintenance of this hospital of which sum $95 000 was given by the State of Pennsylvania

—The Temple University Medical Department Philadelphia has erected a clinical laboratory building adjoining the Samaritan Hospital, at a cost of about $10 000 About $15,000 has been received for the extensions to Samaritan Hospital and for the maintenance of this hospital a sum of $70,000 was granted by the State of Pennsylvania

—A gift of $1 000 was received by the Medico Chirurgical College of Philadelphia for enlarging the chemical library

—Hahnemann Medical College of Philadelphia received an endowment of $200 000 Half of this sum was received from Walter Hering for the endowment of the Constantin Hering professorship of materia medica and therapeutic the other

TABLE 3—MEDICAL STUDENTS SHOWN BY CLASSES

Name of College	Enrolled During 1911 12				
	1st Yr	2d Yr	3d Yr	4th Yr	Total
Birmingham Medical Coll Birmingham	46	34	72	31	183
Univ of Alabama Med Dept Mobile	26	28	44	39	137
Univ of Ark Med Dept Little Rock	22	30	40	53	145
College of P and S San Francisco	6	4	2	4	16
Hahn Med Coll of Pac San Fran—H	6	6	18	5	35
Leland Stanford Junior Univ Dept of Med San Francisco	17	10	7	36	70
University of California Medical Department, San Francisco Los Angeles	33	18	10	27	88
Cal Eclec M Coll Los Angeles—E (a)					28
College of P and S Los Angeles	41	33	26	26	126
Oakland Coll of M and Surg Oakland	2	7	6	7	22
Coll of Med Evangelists Loma Linda	24	23	9		56
University of Colorado School of Med	13	14	51	40	118
Yale Medical School New Haven	11	10	11	31	63
George Washington University Dept of Medicine Washington	29	14	9	40	92
Georgetown University School of Medicine Washington	56	36	36	27	155
Howard University School of Medicine Washington	35	28	52	55	170
Atlanta College of P and S Atlanta	141	76	86	60	372
Atlanta School of Medicine Atlanta	43	73	58	59	233
Georgia College of Eclectic Medicine and Surgery Atlanta—E (a)					70
Southern College of Medicine and Surgery Atlanta (a)					20
University of Georgia College of Medicine Augusta	22	28	34	42	126
Bennett Medical College Chicago	114	104	69	115	402
Chicago College of Med and Surg	116	108	174	158	556
College of P and S Chicago	123	109	127	147	506
Hahnemann Medical College and Hospital Chicago—H	20	24	26	34	104
Hering Medical College Chicago—H	5	4	12	7	28
Jenner Medical College, Chicago	72	28	21	17	138
Northwestern University Medical School Chicago (b)	38	44	57	79	259
Rush Medical College Chicago (c)	164	165	91	139	559
Indiana University School of Medicine Indianapolis	35	22	51	47	155
Drake University College of Medicine	5	4	24	17	50
State University of Iowa College of Medicine Iowa City	33	18	22	37	110
State University of Iowa College of Homeopathic Medicine Iowa City—H	3	1	5	7	16
Kansas Medical College Topeka	4	4	19	10	37
University of Kansas School of Medicine Kansas City	34	17	9	15	75
Louisville Nat Med Coll Louisville	10		3	4	17
University of Louisville Med Dept	89	64	80	120	353
Tulane Univ Med Dept New Orleans	61	66	74	120	321
Medical School of Maine Portland	35	22	15	11	83
Baltimore Medical College, Baltimore	89	44	33	33	199
College of P and S Baltimore	88	57	94	82	321
Johns Hopkins University Medical Department, Baltimore	97	94	81	85	357
Maryland Medical College Baltimore	25	21	45	91	182
University of Maryland School of Med	79	81	75	84	319
Boston Univ School of Medicine—H	38	25	13	18	94
College of P and S Boston (a)					89
Harvard Medical School Boston	95	57	56	50	258
Tufts Coll Med School, Boston	98	85	63	83	329
Detroit College of Medicine Detroit	52	49	32	39	172
Detroit Homeo College Detroit—H	8	5	4	5	22
University of Michigan Dept of Med and Surg Ann Arbor	58	53	42	89	242
University of Michigan Homeopathic College Ann Arbor—H	30	21	19	21	91
University of Minnesota Coll of Med and Surg Minneapolis	62	40	46	35	183
University of Mississippi Medical Department Oxford	20	24			44
Mississippi Med Coll Meridian	16	12	14	17	59
University of Missouri Medical Department Columbia (e)	21	15			36
Kansas City Hahnemann Med Coll—H	9	11	11	10	41
Univ Med Coll Kansas City (d)			41	29	70
Eclectic Med Univ Kansas City	16	16	5	13	50
Ensworth Medical College St Joseph	12	19	11	5	47
American Medical College St Louis	45	33	48	46	172
St Louis Univ School of Medicine	67	41	85	78	271
St Louis College of P and S	7	10	9	12	38
Washington Univ Med Dept St Louis	24	10	31	44	109
Creighton Medical College Omaha	54	36	50	54	194
University of Nebraska College of Medicine Lincoln and Omaha	23	27	11	9	70
Cotner Medical College—E	6	4	9	7	26
Dartmouth Medical School Hanover	8	7	12	9	36
Albany Medical College Albany	83	50	47	43	223
Columbia University Coll of P and S	81	71	104	91	347
Cornell University Medical College New York City	32	23	19	11	85
Eclectic Medical College of the City of New York—E	19	7	4	15	45
Fordham University School of Med	31	29	31	27	118
Long Island Coll Hosp New York City	116	133	94	69	412
New York Homeopathic Medical College and Hospital—H	70	31	35	34	170
New York Medical College and Hospital for Women—H	16	7	6	2	31
University and Bellevue Hospital Medical College New York	205	104	84	83	476
Syracuse University College of Medicine Syracuse	21	15	23	32	91
University of Buffalo, Medical Department Buffalo	82	58	48	40	228
Leonard Medical School Raleigh	28	34	25	34	121
University of North Carolina Medical Department Chapel Hill (e)	29	25			54
North Carolina Med Coll Charlotte	22	24	27	27	100
Wake Forest School of Medicine (e)	28	11			39
Univ of North Dakota Med Dept University Grand Forks (e)	8	5			13
Cleveland Pulte Med Coll, Cleveland—H	29	13	23	14	79
Western Reserve University Medical Department Cleveland	48	33	42	53	176
Eclectic Med Coll Cincinnati—E	23	20	27	19	89
Ohio Miami Medical College of the University of Cincinnati	18	11	28	56	113
Starling Ohio Medical Coll Columbus	73	70	59	54	256
Toledo Medical College Toledo	8	9	13	9	39
Univ of Oklahoma School of Med Norman and Oklahoma City	18	13	9	11	51
University of Oregon Medical Department, Portland	18	13	20	16	67
Willamette University Medical Department Salem	17	19	12	12	60
Hahnemann Medical College and Hospital Philadelphia—H	20	19	29	48	116
Jefferson Medical College Philadelphia	174	156	134	152	616
Medico-Chirurgical Coll. of Philadelphia	82	93	85	81	341
Temple University Medical Department Philadelphia	17	17	21	26	81
University of Pennsylvania Department of Medicine, Philadelphia	67	70	98	132	367
Woman's Medical College of Pennsylvania Philadelphia	33	21	23	35	112
Univ of Pittsburgh Med Dept	16	47	44	67	174
Med Coll of S Carolina Charleston	32	25	42	65	164
University of South Dakota College of Medicine Vermilion (e)	4	5			9
Lincoln Memorial University Medical Department Knoxville	32	15	24	26	97
Meharry Medical College Nashville	85	81	94	75	335
Vanderbilt Univ Med Dept Nashville	131	93	85	83	392
University of Tennessee College of Medicine Memphis	33	27	42	53	155
Memphis Hosp Med. Coll Memphis	73	50	84	112	319
University of West Tennessee Medical Department Memphis	12	4	8	13	37
Fort Worth Sch of Med Ft Worth	22	14	18	17	71
University of Texas Department of Medicine Galveston	49	22	47	44	162
Baylor Univ Coll of Med Dallas	11	18	18	21	68
Southern Methodist University Medical Department Dallas	12	21	15	14	62
University of Utah School of Medicine Salt Lake City (e)	8	4			12
University of Vermont College of Medicine Burlington	46	43	42	45	176
Medical College of Virginia Richmond	81	60	40	61	242
University Coll of Med Richmond	45	36	40	39	160
University of Virginia Department of Medicine Charlottesville	30	26	14	12	82
West Virginia University School of Medicine Morgantown (e)	13	6			19
Milwaukee Medical College	71	55	65	51	242
Wisconsin College of Physicians and Surgeons Milwaukee	9	10	12	12	43
University of Wisconsin College of Medicine Madison (e)	36	24			60
Totals (f)	5048	4063	4294	4759	18412

References—(a) Classified lists of students not published (b) Total includes 41 students unclassified because of conditions (c) No distinction made by college between students of first and second years so total has been equally divided (d) Only third and fourth years of course given (e) Only first and second years of course given (f) Grand total includes also the figures for the unclassified students referred to in (a) and (b)

Note—This table allows of comparison not only between classes of each college but also between different colleges The figures are particularly interesting at this time owing to the general increase in entrance requirements by a large number of medical colleges The effect of these higher requirements is shown by the smaller classes enrolled For example two years ago the University of Colorado began requiring two years of college work for admission the result is seen in smaller enrolments of students in the first and second years The same is true regarding Drake University In the University of Pennsylvania it can readily be seen that the higher requirements began three years ago On the other hand the temporary benefit reaped by some colleges which have retained the lower entrance standards is shown by larger enrolments This is well illustrated by the larger classes enrolled in the first and second years by two of the New York colleges and by one Philadelphia college Both sides of the equation are shown in the Georgia schools where two colleges last year adhered to a four year high school education and naturally reduced the number of their first year matriculants while another college by retaining a lower requirement registered almost twice the usual number The large fourth year class registered by one of the Maryland colleges is found on investigation to be due to unusually generous allowances of credit for advanced standing On the whole it is noteworthy that there are 5 048 first year students nearly a thousand more than are enrolled in the second class year although only about three hundred more than were enrolled in the fourth year class half by the will of Mrs William L Elkins, the income to be used for the general support of the institution

Tennessee—It is reported that the Lincoln Memorial University Medical Department has erected a new laboratory building at the cost of about $10,000

—The University of Tennessee College of Medicine, Memphis, has a new four story laboratory building rapidly approaching completion, the estimated cost of which is $30,000

—The Meharry Medical College, Nashville, has obtained a sum of $10,000 for the completion of the new Hubbard Hospital Mr Julius Rosenwald, of Chicago, has agreed to give $2,500 annually for five years to Meharry Medical College, providing that $37,500 is raised from other sources during that time By the will of the late Dr Robert F Boyd, $5,000 was left to the George W Hubbard Hospital

—Vanderbilt University Medical Department has received gifts to the amount of $300,000, half of which was for the endowment of the institution and the other half for medical buildings A sum of $40,000 was also secured for the erection of a teaching hospital and $12,000 for hospital maintenance The Nashville Academy of Medicine has given $4,000 as an addition to the medical library A new laboratory building is rapidly approaching completion on the new campus recently received and which formerly belonged to the Peabody Normal College

Texas—The University of Texas, Department of Medicine, Galveston, has let the contract for an Isolation Pavilion for treating contagious diseases on the grounds of the Sealy Hospital It is expected this building will be completed by the first of November The cost will be about $16,000 The school has received an appropriation from the legislature of $65,000 for maintenance

—The Southern Methodist University Medical Department, Dallas, it is reported, has secured $5,000 for equipment of laboratories

Vermont.—The University of Vermont College of Medicine, Burlington, received a state appropriation of $10,000

Virginia.—The Medical College of Virginia receives annually an appropriation of $5,000 from the State of Virginia

—The new building of the University College of Medicine, erected at a cost of about $136,000, was opened for public inspection May 22, 1912

Wisconsin—A new clinical laboratory building is being erected at the University of Wisconsin to be in charge of the Student Medical Advisor This has been found necessary because of the growth of the work of examining into the physical condition of the students in attendance in the various departments of the university

Philippine Islands.—New buildings have been erected for the University of the Philippines, College of Medicine, in the last few years as follows A hospital of 350 beds at a cost of about $300,000 and a two and three story laboratory building having a frontage of nearly 300 feet, at a cost of approximately $125,000 This school requires a five year course, the fifth year being spent by the student as an intern in the hospital After Jan 1, 1914, two years of collegiate work will be required for admission It is the medical department of the University of the Philippine Islands established and supported by the Philippine government

Foreign Medical College Notes

Canada—The Laval University Medical Faculty, Montreal, received from the Provincial government and from the City of Montreal a grant of $20 000 for teaching purposes

—McGill University Medical Faculty, Montreal, received during the year endowments to the amount of $217,000 and for new medical buildings a sum of $100,000 The latter sum was donated by Mr and Mrs Robert Reford as an endowment for the chair and department of anatomy

China—The sum of $3,000 has been contributed by patrons of the University of Pennsylvania to the fund for the University Medical School of Canton China Two faculty residences are to be built on the campus of the medical school The college building of this school was erected at a cost of $20,000, and $100,000 are now being expended for a hospital. The college is conducted under the auspices of the University of Pennsylvania

—There is now a 'Harvard Medical School" located at Shanghai, China It is said to have been inaugurated under Harvard auspices, and officered by Harvard men Dr Eliot, former president of Harvard, is President of the China school and made a visit to it during his recent trip around the world Rather than to prepare practitioners, the object of the school is to train teachers who will carry medical progress to the remotest parts of China The same high grade of medical training will be given as that in the best schools of the United States or Europe Special attention is to be given to hygiene and public health

Germany—It is reported that during the summer of 1912 2,958 women medical students are enrolled in the German universities as compared with 2 552 the previous year Of the total this year 1,963 or 66 3 per cent are enrolled in the ten Prussian universities as compared with 50 8 per cent of the male students About 2,500 of these women students are German while the balance 258, are foreigners

India—Grant Medical College is affiliated with the University of Bombay It was organized in 1845 but not recognized by the University until 1860 A five year course, including a preliminary year in physics, chemistry and biology, leads to degrees of Bachelor of Medicine and Surgery These degrees admit the holder to practice From three to five years of practice, including a year's study at a recognized hospital in some particular branch in which a special examination must be passed, is essential to secure the degree of M D During 1911 12 the highest number of students was enrolled, 519, and 55 passed the final examination The college is well endowed, has laboratories for scientific research and gives clinical instruction in a hospital aggregating nearly 500 beds

—The following table shows the number of students and graduates of the various medical schools of India[1] during the last year

Colleges and Schools *	Students Enrolled	Passed Final Examination
University of Bombay Grant Medical College	519	57
University of Calcutta, Med Coll of Bengal	535	43
Panjab University Lahore Medical College	107	20
University of Madras Madras Med College	388	15
Agra Medical School	301	19
Lahore Medical School	203	41
Rangoon Government Medical School	43	10
Medical Schools at Dacca and Dibrugarh	295	72
Royapuram Medical School	177	14
Tanjore Prince of Wales School	94	6
Vizagapatam Medical School	52	4
Medical School at Poona	130	23
Medical School at Ahmedabad	139	22
Medical School at Hyderabad	51	8
Totals	3 160	178

* It is understood that only the four colleges first named are accredited by the Examining Board in England

Ireland.—Last year the Medical School of Trinity College, Dublin, completed the second century of its existence Trinity College was founded by Queen Elizabeth in 1590 Funds were raised to the amount of $10 000 a sum equal to about $80,000 at the present day Although medicine was apparently taught and degrees granted as early as 1616 the Medical School with organized instruction was not established until special medical buildings were erected and formally opened Aug 16 1711 For the first fifteen years the matriculations averaged only 4 7 in each year Following this there was a gradual increase until in 1829 the number reached 90 During 1872 to 1881 a yearly average of thirty nine degrees in medicine were granted The present medical building was erected in 1886 Other buildings are the histological laboratory erected in 1880 and the anatomical built in 1876 This is said to be one of the oldest and most renowned medical schools of Great Britain

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1 Indian M [illegible]
2 Brit. M

THE JOURNAL OF THE
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[*For other information see second page following reading matter*]

SATURDAY, AUGUST 24, 1912

Wrong Cover on Last Week's Journal

Through a peculiar accident, between 500 and 1,000 copies of last week's issue of The Journal were bound with the cover for the previous week. We shall be glad if those who received The Journal in this condition will write us, we will then send them the right cover to paste on

MEDICAL EDUCATION IN THE UNITED STATES

The tabulated statistics herewith presented (pages 625 to 649) are for the year ending June 30, 1912, and are based on signed reports received directly from the medical colleges, or from other reliable sources We take much pleasure in acknowledging here the courtesy and cooperation of the various officials of the medical colleges which have made the compilation of these complete statistics possible

STATISTICS OF COLLEGES

Table 1 (pages 640 to 642) gives the colleges in session during 1911-1912, the population of the city in which each college is located, the number of students, men and women, registered during the year, the number of 1912 graduates, men and women, the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year, the total fees for each year, the executive officer of the college and the dates of beginning and ending of the next session The figures in heavy-faced type show the totals by states Beginning on page 625 are given essential facts concerning all medical colleges arranged by states

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30 1912 excluding special students, was 18,412, a decrease of 1 374 below 1911, a decrease of 3 114 below 1910 a decrease of 3 733 below 1909, and a decrease of 9,730 below 1904, when the highest number of students was enrolled In fact, it is the lowest number since The Journal began compiling these statistics in 1900 Of the total number of students, 17 277 were in attendance at the so-called regular colleges 827 at the homeopathic, and 308 at the eclectic colleges The attendance at the regular colleges shows a decrease of 1,137 below that of last year and of 2,859 below 1910 In the homeopathic colleges there was a decrease of sixty-three below the attendance of 1911 and a decrease of forty below the total for 1910 The eclectic colleges show a decrease of sixty-three below 1911 and a decrease of forty-seven below 1910 The last of the physiomedical colleges became extinct a year ago

TABLE 4 —Medical College Attendance

Year	Regular	Homeo pathic.	Eclectic.	Physio Med	Nonde-script	Total
1880	9 776	1,220	830			11,826
1890	13,521	1,164	719			15 404
1900	22,710	1,909	522			25 171
1901	23,846	1 683	664	80	144	26 417
1902	24,878	1,617	705	91	150	27,501
1903	24,930	1 498	848	149	190	27 615
1904	23 662	1,309	1 014	123	234	28,142
1905	24 119	1 104	678	114	232	26 147
1906	23 110	1 085	644	110	249	25,204
1907	22,303	1 039	545	97	292	24 276
1908	20 936	891	479	90	206	22 602
1909	20,554	899	413	52	227	22 145
1910	20 136	867	455	49	19	21,526
1911	18 414	890	433	49		19 786
1912	17,277	827	308			18 412

The total number of graduates for the year ending June 30, 1912, was 4,483, an increase of 210 above 1911, an increase of forty-three above 1910 but a decrease of thirty-two below 1909 The total this year is 1,264 less than in 1904, when the largest number were graduated The percentage of graduates to matriculants was 24 7 this year, as compared with 21 6 in 1911 and 20 7 in 1910

The number of graduates from the regular colleges was 4,206, or 200 more than in 1911, ninety-three more than in 1910 and forty-three more than in 1909 From the homeopathic colleges there were 185 graduates, or thirty-three more than in 1911, two more than in 1910 and twenty-four less than in 1909 The eclectic colleges graduated ninety-two, or eighteen less than last year, but eight more than in 1909

TABLE 5 —Medical College Graduates

Year	Regular	Homeo pathic.	Eclectic.	Physio-Med	Nonde-script	Total
1880	2 673	380	188			3,241
1890	3,853	380	221			4 454
1900	4 715	413	86			5,214
1901	4,879	387	148	18	12	5 444
1902	4 508	336	138	16	11	5,009
1903	5 088	420	149	24	17	5 698
1904	5 190	371	146	20	20	5 747
1905	5 126	276	153	22	23	5 600
1906	4,841	286	186	22	20	5,361
1907	4,591	225	121	11	32	4,980
1908	4,370	215	116	12	28	4 741
1909	4 163	209	84	15	44	4 515
1910	4 113	183	114	16	14	4 440
1911	4 006	152	110	5		4,273
1912	4,206	185	92			4 483

Of the 4,483 medical graduates 763, or 17 per cent, were reported to hold also degrees in arts or science, as compared with 16 5 per cent last year and 15 3 per cent in 1910 Of the regular school graduates, 17 8 per cent held baccalaureate degrees, while of the homeopathic graduates, only 6 5 per cent and of the eclectic graduates 4 3 per cent, held such degrees As will be noted by referring to Table 12, of the 763 graduates holding baccalaureate degrees, 141, the largest number, came from Illinois colleges, followed by eighty-five from Maryland, eighty-two from New York, sixty-five from Pennsylvania and sixty-two from Massachusetts It is expected that in future the percentage of graduates holding collegiate degrees will increase, since a larger number of medical schools are requiring college work for admission

WOMEN IN MEDICINE

During the past year there were 679 women studying medicine, or one less than last year, a decrease of 228 below 1910, and a decrease of 242 below 1909 The percentage of all medical students was 3 2 as compared with 3 4 last year There were 142 women graduates this year, or 3 2 per cent of all graduates In 1910 there were 907 women students and 157 graduates, while in 1909 there were 921 women students and 162 graduates Of all the women matriculants, 143 (21 1 per cent) were in attendance at the two medical colleges for women, as compared with 134 (19 7 per cent) in 1911, 155 (17 1 per cent) in 1910, 169 (18 4 per cent) in 1909 and 186 (22 3 per cent) in 1908 The remaining 536 (79 8 per cent) were matriculated in the sixty-four coeducational colleges From the two women's colleges, there were thirty-two, or 22 5 per cent, of all women graduates while 110, or 77 5 per cent, secured their degrees from coeducational colleges

TABLE 6 —WOMEN IN MEDICINE

Year	Total women students	Percentage of all graduates both sexes	Total women graduates	Percentage of graduates both sexes	Women's colleges	Students	Percentage of all women students	Graduates	Percentage of all women graduates	Co-ed schools	Students	Percentage of all women graduates	Graduates	Percentage of all women graduates
1904	1 129	4 3	244	4 0	3	183	16 2	56	23 0	97	946	83.8	188	77 0
1905	1,073	4 1	210	4 0	3	221	20 6	54	24.5	96	852	79 4	165	75.5
1906	895	3.5	233	4.3	3	189	21 0	33	14 1	90	706	79 0	200	85.9
1907	928	3.8	211	4.2	3	210	22 6	39	18 5	86	718	77 4	172	81.5
1908	835	3 7	185	3.0	3	186	22.3	46	24.9	88	649	77 7	139	75 1
1909	921	4.2	162	3.7	3	169	18 4	33	20.3	91	752	81 6	129	79 7
1910	907	4.2	157	3.5	3	155	17 1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3 7	2	134	19 7	36	22 6	74	546	80.3	123	77 4
1912	679	3.2	142	3.2	2	143	21 1	32	22.5	64	536	78.9	110	77.5

NUMBER OF COLLEGES

Since June 30 1911, seven colleges (mentioned on page 643) have either suspended or have merged into others, one new college has been organized and two others formerly suspended were revived, leaving 116 medical colleges still existing The number of colleges is now the same as in 1890 It was about that time that the movement toward establishing medical colleges for profit became most marked and the rapid increase in the number of colleges has been paralleled only by the rapid decrease since 1904 There has been a net decrease of fifty colleges since 1904, when there were 166 colleges Sixty-five colleges have been closed by merger or otherwise since 1904, but in the same time fifteen new colleges were organized, leaving 116 medical colleges which still exist The regular colleges number 100, a decrease of one since last year The homeopathic colleges number ten, a decrease of two since last year and the eclectic colleges number six, a decrease of one since last year

TABLE 7 —MEDICAL COLLEGES

Year	Regular	Homeopathic.	Eclectic.	Physio-Med	Nondescript	Total
1880	72	12	6			90
1890	93	14	6			116
1900	121	22	8			151
1901	124	21	10	2	2	159
1902	121	20	10	3	1	155
1903	121	19	10	3	1	154
1904	133	19	10	3	1	166
1905	129	18	9	3	1	160
1906	130	18	9	3	1	161
1907	131	17	8	3	2	161
1908	123	16	8	2	3	152
1909	117	14	8	2	3	144
1910	111	13	7	1	1	133
1911	101	12	7			120
1912.	100	10	6			116

FEWER BUT BETTER COLLEGES

Of the sixty-five medical colleges which have ceased to exist, thirty-seven were closed by merger and twenty-eight became extinct It is noteworthy that this remarkable diminution in the number of colleges began following the creation of the Council on Medical Education in 1905, and became more marked following the Council's first classification of medical colleges issued in 1907 The largest number closing was in 1910, when the Council's second classification was published

TABLE 8 —COLLEGES CLOSED SINCE 1904

Year	Class A.*		Class B		Class C		Totals		Total Closed
	Mgd	Ext	Mgd	Ext	Mgd	Ext	Mgd	Ext	
1905	8	1					8	1	9
1906									
1907	3		3	1		3	6	4	10
1908	2		2		1	4	5	4	9
1909	3		2			7	5	7	12
1910	1		3		3	6	7	6	13
1911			3		1	3	4	3	7
1912	2					3	2	3	5
Totals	19	1	13	1	5	26	37	28	65

* Based on the classifications of medical colleges prepared by the Council on Medical Education

It is interesting to note also that most of the closures of medical schools in Classes A and B were by merger whereas all but two of the medical schools which became extinct had been rated in Class C

While the total number of colleges is growing smaller however and approaching more nearly the normal supply for this country it is encouraging to note that the number of high [illegible] medical colleges is constantly increas[illegible] colleges [illegible] were requir[illegible] of the usual high school education, now there are forty-five[1] requiring one or more years of advance college work The colleges have been remarkably improved also in regard to buildings, new laboratories, better equipment, larger hospital facilities and—most important—more and better full-time, salaried instructors

LENGTH OF TERMS

The length of term of each college fluctuates somewhat from year to year, but on the whole, during the last twelve years there has been a decided lengthening of college terms This has reference to the weeks of actual work, exclusive of holidays Only one college this year reported sessions shorter than twenty-seven weeks, whereas in 1901 fifty-eight reported sessions of this length Likewise, only one college, or five less than last year, and forty-five less than in 1903, reported sessions of twenty-seven or twenty-eight weeks Eleven colleges claim courses of twenty-nine or thirty weeks of actual work, thirty-four claim courses of thirty-one or thirty-two weeks, and thirty-seven, the largest number, claim courses of from thirty-three to thirty-four weeks Of the 116 colleges now existing, ninety-nine, or over 85 per cent, now claim to require from thirty-one to thirty-six weeks of actual work, exclusive of holidays, as compared with 76 per cent in 1910, 42 per cent in 1904 and 30 per cent in 1901 The one college claiming a course longer than thirty-six weeks is a night school, it would require twelve or fourteen years of the usual night-school study, however, to obtain the equivalent of four years of thirty weeks each in one of the better day colleges

TABLE 9 —COLLEGE TERMS

	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
1901	58	38 5	40	26 4	8	5 0	26	16 4	4	2 5	18	11.8	3	1.9
1902	44	28.4	44	28 4	11	7.1	33	21 3	3	1.9	18	11 6	2	1.3
1903	33	21 4	46	29 9	15	9 7	37	24 0	2	1.3	19	12 4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12 0	3	1.8
1905	15	9 4	35	21.8	12	7.5	44	27.5	13	8 1	38	23.8	3	1.9
1906	14	8.7	35	21 7	26	16 1	32	19.9	24	14 9	28	17 4	2	1 3
1907	6	3 7	27	16.8	26	16 1	42	26 1	29	18 0	29	18 0	2	1.3
1908	2	1.3	21	13.8	28	18 4	51	33 6	24	15.8	22	14 5	4	2 6
1909	4	2.3	17	11 6	23	16 4	51	34.9	18	12.3	30	20 5	3	2 0
1910	2	1.5	8	6 0	19	14.3	42	31.5	30	22.6	30	22 6	2	1.5
1911			6	5 0	16	13.3	37	30.8	32	26 7	28	23 4	1	0.8
1912	1	0.9	1	0 9	11	9 5	34	29 3	37	31.8	31	26 7	1	0 9

TUITION AND OTHER FEES

Special attention is called in Table 1 to the total amount charged by the various colleges for tuition, matriculation, laboratory and graduation fees per annum for each student In Table 10 the 116 colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B or C Nineteen colleges charge fees of $100 or less per year, seventy-nine charge between $100 and $175 and eighteen charge above $175 Of the nineteen colleges charging $100 or less, ten, or over half were listed among Class A (acceptable) colleges[2] by the Council on Medical Education, three were among Class B colleges, and only six of them are found among the Class C colleges Among the ten Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah

TABLE 10 —COLLEGE FEES

Total Fees	Number of Colleges			
	Class A *	Class B	Class C	Total
$ 50 or less	1	1		2
50 to $ 75	7	1	2	10
75 to 100	2	1	4	7
100 to 125	11	8	15	34
125 to 150	13	4	10	27
150 to 175	10	6	2	18
175 to 200	9	2		11
200 or above	7			7
Totals	60	23	33	116

* Based on the latest classification of medical colleges prepared by the Council on Medical Education

On the other hand thirty colleges listed by the Council in Class C charge fees of over $100 per year for each student This clearly refutes the assertion made by some inferior colleges that they are needed for the sake of "the poor boy who wants to study medicine" Although fifty colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges amounts to much more than that

COST OF MEDICAL INSTRUCTION

From statements from ten medical colleges showing the amount actually expended for conducting those colleges during one recent session, Table 11 has been prepared For each college the total expenditure is shown, the average cost per student, and the average amount received in fees from each student One college, it will be noted, expended $1,177 for each student, whereas that student gave in return only $153 The average shows $479 expended per student, whereas each paid in return only $125 Still, among these ten medical schools are some which are not richly endowed These figures point to the conclusion that medical schools must

TABLE 11 —COST OF TEACHING MEDICINE
Actual cost for one year in ten medical schools Average enrolment 101

Medical School	Total Expenditure	Average Expended Per Student	Average Amount Rec d Per Student
1	$ 43 520	$ 145.50	$ 120 00
2	33,395	283 00	75 00
3	70 900	437 70	30 40
4	128,380	1 177.80	153 10
5	56,936	340 00	118.85
6	51 473	817.50	170 00
7	102,353	559 30	127.85
8	27,958	236 50	145 50
9	20,575	571.50	133 70
10	75 075	201.25	177.85
Average	$ 61 036	$ 479 00	$ 125.24

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[1] List shown on page 636

[2] See list on page 639

have more income than is derived from students' fees, in the form of either state aid or private endowment.

The discrepancy between the expenditure and income will be less marked as the number of medical schools reaches more nearly the normal supply. For practically the same amount now being expended several of the medical schools referred to could teach several times as many students as at the present time. For example, the school which expended $1,177 per student could teach 500 students where now it teaches only about 100. With the larger number the proportion expended per student would be reduced to about $257. It is, therefore, clearly in the interests of economy as well as in the better training of the future practitioners of medicine that there be a further reduction in the number of medical colleges in this country. The reduction is particularly beneficial, furthermore, since it is being brought about by the closing of the low-grade colleges.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois has usually had the largest number of medical colleges, but now the first place is held by New York, where there are eleven colleges. Missouri has nine and Illinois ties with California for third place each having eight colleges. Illinois still has the largest number of students enrolled however having 2 392 matriculants last session, followed by New York with 2,161, Pennsylvania with 1 686, Maryland with 1 337 and Tennessee with 1,327. In regard to the graduates the same relative position obtains except that Pennsylvania has a larger number than New York. Of graduates holding baccalaureate degrees, Illinois has the largest number, 141, followed by Maryland with eighty-five, New York with eighty-two, Pennsylvania with sixty-five and Massachusetts with sixty-two.

TABLE 12.—STUDENTS AND GRADUATES. TOTALS BY STATES

State.	Medical Schools	Students		Graduates		Graduates with B S or A.B
		Men	Women	Men	Women	
Alabama	2	320		66		7
Arkansas	1	143	2	51	1	1
California	8	389	52	99	5	20
Colorado	1	110	8	88	1	4
Connecticut	1	63		29		3
Dist. of Col	3	412	5	94	2	15
Georgia	5	817	4	192	2	12
Illinois	8	2,392	100	380	28	141
Indiana	1	145	10	43	2	9
Iowa	2	166	10	54	2	4
Kansas	2	106	6	22	1	9
Kentucky	1	370		194		
Louisiana	1	321		104		22
Maine	1	83		11		5
Maryland	5	1,337	41	322	9	85
Massachusetts	3	725	45	176	14	62
Michigan	3	501	26	141	8	31
Minnesota	1	173	10	36	1	23
Mississippi	1	102	1	14		
Missouri	9	809	25	216	7	27
Nebraska	3	275	15	62	5	12
New Hampshire	1	36		9		2
New York	11	2 161	65	421	8	82
North Carolina	4	312	2	63	1	7
North Dakota	1	12	1			
Ohio	6	795	27	106	6	51
Oklahoma	1	47	4	9	1	
Oregon	2	190	7	29		3
Pennsylvania	7	1 686	121	472	34	65
South Carolina	1	163	1	64	1	13
South Dakota	1	9				
Tennessee	9	1,327	8	390	2	24
Texas	4	345	18	96	1	9
Utah	1	12				
Vermont	1	176		47		1
Virginia	3	484		90		11
W Virginia	1	19				
Wisconsin	3	340	5	60		3
Totals	116	17,733	670	4,340	142	763

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 644 to 647, shows from what states the students come who were in attendance at each medical college during the session of 1911-1912. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations[3] which show the distribution of the alumni of each college is interesting. The college which has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,109. Pennsylvania contributed 1,529 and Illinois 1,338. The next states in the order of the number of students contributed are Ohio, 818, Massachusetts, 712, Texas, 642, Missouri, 556 and Tennessee, 525. Four states had less than twenty each, these being Wyoming, fourteen, Arizona nine, New Mexico, eight, and Nevada, three. There were eighty-six students from Hawaii, Porto Rico and the Philippine Islands, and 600 students from foreign countries.

In Table 3, page 648, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year in all colleges shows an increase over the second-year class of nearly a thousand students. More interesting, however, is the study of this table in the light of higher entrance requirements which have been adopted during the last two or three years by a large number of colleges.[4] The effects of these higher requirements are shown in the figures in two ways: smaller enrolments for the colleges which have adopted the higher requirements and larger enrolments for the colleges which have retained the lower requirements. The benefit in larger classes for the "stand-pat" colleges can be only temporary however so decided is the trend for the higher standards. Already nine state licensing boards have gone on record for the higher requirements and others are contemplating similar action. The House of Delegates of the American Medical Association in June *adopted a report* instructing the Council on Medical Education to omit from the acceptable list any medical college which after Jan. 1, 1914 does not require for admission in addition to the four-year high-school education at least one year of higher preliminary work, including courses of college grade in physics, chemistry and biology The medical profession of the United States, therefore, has gone on record for entrance qualifications which will bring medical education in this country more nearly on a par with the requirements of other countries

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[3] THE JOURNAL A. M. A., May [illegible], p. [illegible]
[4] See list on page [illegible]
[5] THE JOURNAL A. M. A., June 15, p. [illegible]

Another development of the year was the action of the New York Education Department in requiring that after Oct 1, 1912, no medical college will be registered as being up to the required standard which does not have at least six salaried full-time teachers This is in support of the action taken by the Council on Medical Education over two years ago In fact one of the chief improvements during the year has been along this most important line—the securing of expert, full-time teachers Buildings, laboratories, equipment and clinical material are important and essential if there are good teachers to make use of them Without such teachers, however, their possession is of less consequence Given these expert teachers, the chances are that they may be relied on to secure the needed laboratory equipment, to develop working medical libraries and museums, and to attract dispensary and hospital patients While there have probably been fewer changes of a spectacular nature during the last year as compared with previous years, nevertheless the changes within the existing colleges have been even more marked The campaign for improvements in medical education, therefore, is still being actively carried on

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BODY TEMPERATURE AND DAILY ROUTINE

There is probably no single professional activity which engages the physician so frequently as the determination of body temperature The daily rhythm of the temperature record in healthy man is now a familiar fact of science The maximum temperature is reached in the late afternoon or evening, the minimum in the early morning hours, usually between two and six o'clock The range of this diurnal variation may exceed one degree, hence the interpretation of small variations in the temperature records of patients must be made with a due appreciation of the normally occurring changes of which we have just spoken

But what is the real significance of these diurnal rhythms and why are they so fixed and characteristic? We are accustomed to think of the body temperature as an unvarying constant so long as morbid processes are excluded from the performances of the organism Yet this is in fact far from accurate All muscular and glandular activity is attended with heat production, and the compensatory regulating processes of the organism are by no means so speedy and effective as to produce an instantaneous adjustment to new conditions of heat production or heat loss The simple act of arising from bed and dressing—a performance which scarcely gives the impression of any profound muscular effort or expenditure of energy—is ordinarily adequate to cause a rise in temperature clearly detectable by accurate clinical measurement After vigorous exercise the elevation in body temperature may become quite conspicuous despite the vigorous functions which are at once called into play to dispel the waste heat

Inasmuch as the diurnal rise and fall in temperature ordinarily coincides, in a sense, with the incidence of day and night, and as these are in turn characterized by comparative predominance of activity and rest respectively, the daily rhythm might be assumed to find its explanation in these features There are, however, numerous factors which might affect the body temperature, namely, muscular exercise, mental effort, ingestion of food, light, the temperature of the environment, and sleep Even these have not been regarded as sufficient to account for the daily fluctuation, so that some have been inclined to assume the existence of a fixed periodicity, persisting under all conditions, finding its expression in the temperature rhythm and remaining independent of the outside influences Seasonal and lunar changes have not infrequently been associated with biologic phenomena, and the apparent fixity of the temperature rhythm has often been grouped with these somewhat mysterious experiences An obvious way to detect certain factors assumed to be primarily involved in the daily temperature rhythm would be to alter the routine of the individual—to turn his night into day in respect to habits of waking and sleeping It is surprisingly difficult to do this with success, so deeply do our habits of work and repose become engrafted on us Our typical night workers—bakers, nurses, watchmen, etc —rarely present an ideal instance of perfect inversion of the day and night routine of their fellowman Lindhard[1] did succeed in reversing the routine of the members of the ship's company in the Danish Arctic expedition during the long polar night The curves of the temperature variation followed the changes in work and mode of living The astronomic division of day and night was without importance and the debated possibility of an inherited form of temperature curve or a cosmic cause for the rhythm was put out of question

A quite different and thoroughly ingenious method of determining whether the diurnal variation is due to the combined effects of influences, such as exercise, etc, which are known to act on it, or whether it is present unrelated to these, has been employed in recent years independently by three physiologists[2] All of them shifted the incidence of time independently of their routine of activity by rapidly changing their longitude in extensive journeys Thus Gibson altered his time eleven hours in a trip from New Haven to Manila, Simpson traveled from Edinburgh to Winnipeg In every instance there was an immediate adjustment of the temperature rhythm to the changed routine day by day The rise and fall occurred at practically the same period of local time throughout the journeys These observers, be it noted, literally turned their day into night by the shift which the difference in local time of two widely separated stations occasioned

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[1] Report of the Spanish Expedition to the Northeast Coast of Greenland (1906-08) 1910 xliv 1

[2] Gibson R B Am Jour Med Sc. 1905 p 1048 Osborne W A Proc. Physiol Soc Jour Physiol Jan 25 1908 Simpson S Tr Roy Soc Edinburgh 1912 xlviii 231.

Simpson has found that the rhythmic temperature curve can almost be obliterated by continued stay in bed and enforced muscular rest during the whole twenty-four-hour period, with abstinence from food during the same time Any temperature rhythm inherent in the body might be expected to show itself under these conditions and, if persistent, to be carried from one locality to another This was found not to be the case It seems settled, therefore, that the diurnal variation of body temperature is determined by the conditions, such as rest and activity, imposed on the body, and is not an expression of any inherent established periodicity

THE MEDICAL MAN AND RESEARCH

In a recent address on "Research Foundations in Their Relation to Medicine"[1] the well-known neurologist of the Wistar Institute, Prof H H Donaldson, has expressed certain views which deserve to be heralded in medical circles beyond the immediate audience of graduates in medicine to which they were originally addressed He has emphasized the fact that the programs of the large research foundations imply the hope that by such endowments new facts and new points of view fundamentally important to medicine may be discovered Many of these establishments serve in a way to mediate between the problems of practice and the findings of science The popular mind is constantly alert for some new application of science to the work of the world or the needs of the arts Accordingly there is an ever-present tendency to place undue importance on the purely practical aspects of all research

The worker who is engaged in the actual pursuit of scientific investigation realizes well enough that there is no essential distinction between so-called practical and theoretical knowledge He would, indeed, be rash who would foretell where one type of contribution merges into the other But with the laity the search for the unknown finds little encouragement except when it is attended by some palpable result of immediate application Hence the pressure which many of our institutions feel to present something that will satisfy this unfortunate and mistaken public demand

Precisely here the medical man of to day has an opportunity and a duty Trained in the school of modern science he should have acquired an appreciation of the unhampered search for new knowledge which is so rarely intelligible to the community at large He is more or less familiar with the aims of the research worker and has some understanding of what these endeavors have contributed to the world He should defend the effort and help to spread the propaganda We believe that the attitude of the practitioner toward certain features of medical research is, in general, wholesome and helpful in so far as these features involve relations to the problems of clinical medicine There is however, another class of problems which demand solution no less than some of the more obvious questions These more subtle problems involve the "why" and "how" They are harder to answer, they appeal to fewer investigators, and not many men are adequately equipped to attack them As Donaldson has said, because the men who can do this latter kind of work are relatively rare, even among investigators, because such work can have rational appreciation from a limited group only, and because knowledge of this sort is sure to become the basis for many applications in the future, it behooves us all to see to it that we foster such investigators — the most valuable of our natural resources When a mistaken popular notion arises as an obstacle to progress we must help to remove it

It has often been said that research is an attitude of mind This is something different from the mysterious features which are sometimes attributed to it The spirit of research is attainable, even if at times it seems remote Quoting Donaldson "A man may have little leisure and trifling resources, and may never have published, but if he examines the world in a questioning spirit, if he carries with him not only conclusions, but the observations on which they rest, if he refuses to pound square facts into the round holes that he happens to have in hand, he has attained illumination"

LIGHT THROWN ON THE CAUSE OF TYPHOID BY VACCINATION WITH LIVE CULTURES

It is now thirty years since Eberth first described the *Bacillus typhosus* and almost thirty since Gaffky isolated the same organism in pure culture Yet, though the study of the typhoid bacillus is almost universal in laboratories and though many investigators are engaged in clinical and epidemiologic studies of the disease experimental proof that the typhoid bacillus is the specific cause of this infection has been scant In view of this apparent lack of advance many even in this day question the specific etiologic agency in typhoid fever of the bacillus described by Eberth Recently work has appeared the results of which show that this skepticism is not justified

Grunbaum[1] in 1906 made attempts to infect chimpanzees with typhoid by feeding them pure cultures and a portion of the stool from a case of the disease but his results while suggestive were not conclusive

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[1] Donaldson H H Research Foundations in Their Relation to Medicine Address at the Graduation Exercises of the Yale Medical School Science July 19 191

[1] Grünbaum A S [illegible] Some [illegible] Fever and Measles in the [illegible] 1904 p 817

In March, 1911, Metchnikoff and Besredka[2] presented a paper on experimental typhoid fever in the chimpanzee, reporting work of great interest and importance With the history of hog cholera in mind these investigators, instead of using pure cultures of the typhoid bacillus, endeavored to infect a chimpanzee with the feces from a case of typhoid fever The chimpanzee, eight days after it had ingested, with food, fecal material containing an abundance of typhoid bacilli, developed typhoid The appearance of diarrhea, the presence of typhoid bacilli in the blood and the development of specific agglutinins in the blood-serum left no doubt as to the result and clearly showed the susceptibility of the chimpanzee to infection with typhoid fever by feeding

Metchnikoff and Besredka were unable either to infect or to vaccinate apes by the feeding and the injection under the skin of the fluid obtained by the filtration of typhoid stools Hence these authors conclude that the typhoid bacillus, and not a filterable virus, is the etiologic agent in typhoid fever They find that the lower monkeys are only exceptionally susceptible to typhoid, and that rodents, such as the rabbit and guinea-pig, are not at all susceptible to infection by feeding

In the same paper and also in a later one[3] they report attempts at protective inoculation by various means They found that neither killed cultures nor their autolysates protected chimpanzees against infection with typhoid fever, but that vaccination with living cultures produced an immunity apparently as definite as that produced by an attack of the disease Vaccination with non-sensitized cultures produced an intense local and general reaction, while sensitized cultures caused only a feeble local and almost no general reaction, the two measures appeared to confer equal immunity to infection

The work reported by Metchnikoff and Besredka fulfils for the first time the postulates of Koch as to the etiologic relation of the *Bacillus typhosus* to typhoid fever, discredits the theory of a filterable virus in the disease, shows the possibility of absolute protection by vaccination with living cultures, and emphasizes the importance of not relying on vaccination with killed cultures to the exclusion of all other precautionary measures

More recently Metchnikoff and Besredka[4] have reported the results of the vaccination of 745 persons with sensitized living cultures of the typhoid bacillus The local reaction in almost all of the cases was extremely slight, and rarely was there any general reaction Bacteriologic examination of sixty-four of those vaccinated failed to show typhoid bacilli in the blood urine or feces It would seem probable, therefore that persons vaccinated with sensitized typhoid bacilli do not become either "carriers" or infected with typhoid This large series of vaccinations would appear to show the safety of the use of sensitized cultures of typhoid bacilli as a preventive of the disease If the further use of this method of vaccination shows it to be as harmless as believed by Metchnikoff and Besredka, apparently an important advance in protective inoculation has been made over the use of killed cultures The latter method, it will be recalled, failed to protect chimpanzees against experimental infection with typhoid fever in the experiments of Metchnikoff and Besredka, while vaccination with sensitized cultures afforded complete protection

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[2] Metchnikoff Elie and Besredka A Recherches sur la fièvre typhoide expérimentale Ann de l Inst Pasteur March 25 1911

[3] Metchnikoff Elie and Besredka A Des vaccinations antityphique Ann de l Inst. Pasteur December 1911 p 861

[4] Metchnikoff Elie and Besredka A Sur la vaccination contre la fièvre typhoide Semaine méd. July 24 1912 p 355

PREVENTIVE METHODS AGAINST DIPHTHERIA

A great fall in the mortality-rate from diphtheria followed the inauguration of the general use of diphtheria antitoxin in 1894-1895 A death-rate of 100 to 150 per hundred thousand of population was soon replaced by one of seventy and sixty, and during the last few years the rate per hundred thousand in the principal cities of the world has been from thirty to forty in some, and less than one in others The marked fall in death-rate which occurred during the first years after diphtheria antitoxin came into use must reasonably be credited to that agent During more recent years the death-rate has tended to fluctuate but little in individual cities, and in many no downward tendency is noted

Abel[1] has recently shown by statistics that the death-rate from diphtheria in most German cities is two or three times that of most other European cities In 1907, eight German cities had a diphtheria death-rate of 1 48 to 3 17 per ten thousand, while during the same year, of eighteen European cities outside of Germany, in thirteen the rate fell below 1 5 and in only two was it as high as 2 0, except in Christiania, in which it was 4 71 In Brussels the rate was only 0 15 Abel calls attention to the fact that in Germany there are now more deaths from diphtheria than from scarlet fever After showing graphically that Germany is not controlling diphtheria so well as her neighbors, he proceeds to indicate the reasons for the failure and to suggest remedies, many of which might be adopted with benefit by some American cities

Abel emphasizes the fact that the practitioner, whose chief interest is naturally in the cure of the sick, since he is familiar with the remarkable curative power of antitoxin and has confidence in it, is less likely than is an official health physician to lay stress on the prevention of infection Therefore the regulation and instruction of the patient and his family in regard to the prevention of the spread of the disease should be delegated to properly qualified health officers The cooperation of the practitioner and the report by him of every suspicious case that bacteriologic examinations may be made, is of the utmost importance

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[1] Abel Centralbl f Bakteriol Orig., 1912 lxiv 220

The spread of the disease takes place through the agency of sick or convalescent diphtheria patients or bacillus-carriers who have never been appreciably sick, either by direct transfer or by means of intermediate carriers, as milk, etc Hence, it is imperative that persons who harbor the bacilli be effectively isolated until repeated bacteriologic examinations have shown the secretions free of bacilli Prophylactic injections of serum are useful to check an epidemic in a family, school or institution, but are useless as a measure for preventing the spread of the disease to uninfected persons Whenever proper isolation cannot be carried out in the home, the patient should be placed in a suitable hospital

Terminal disinfection is to be performed only when danger of infection is removed as shown by proper cultures To disinfect a house which contains a bacillus-carrier is to give a false sense of security to the family and to their friends When diphtheria bacilli remain a long time in the secretions, animal tests for virulence, as suggested by Kolmer,[2] should be made This measure will secure the release of many patients from a long and needless quarantine

The method by which Abel and other German writers attempt to stimulate interest by calling attention to the high mortality from diphtheria in Germany, as compared with other European countries, might be adopted with advantage in America In 1911 the death-rate from diphtheria in New York was 2 39 and in Chicago 3 91 These figures are about on a par with those of German cities, and do not compare at all favorably with those of the cities of European countries aside from Germany American cities have not generally appreciated the economic aspect of prophylaxis of disease

Current Comment

CHICAGO'S NEW MILK ORDINANCE

Reference has heretofore been made to the unprotected condition of the milk-supply of the city of Chicago This condition came about through the enactment by the Illinois legislature of a law prohibiting the requirement of the tuberculin test of cows which are the source of the milk-supply of cities, and the defeat of an ordinance in the city council providing for the inspection of dairies and the pasteurization of milk from the dairies not coming up to the requirements of such inspection The defeated ordinance, in addition to other requirements, provided that milk should be labeled either 'inspected' or "pasteurized" This ordinance was defeated largely through the influence of the so called small dealers who insisted that it would operate wholly in favor of the large distributors of milk The situation was particularly unfortunate in that it left the milk-supply of a large city in a practically unprotected condition during the greater part of the warm season, its effects are demonstrated in the report of the health department of the city, which shows that notwithstanding a cool season, the bacterial count of hundreds of specimens of milk is exceedingly high this season as compared with previous seasons under better legal restrictions, and that the death-rate among infants is higher than in 1911 After a short but vigorous campaign on the part of the subcommittee of the health committee of the council, and citizens through a citizens' committee, provided for at a public meeting, a slightly modified ordinance was passed by the council last week The ordinance now provides for inspected and pasteurized milk, each of which must be so labeled Inspected dairies must have scores of sixty-five or more on equipment and methods Cows must be inspected by a competent veterinarian and the milk must be maintained at a temperature not above 60 degrees at first and at a later period, 55 degrees The score of the dairies producing inspected milk must also later be raised to seventy Milk coming from dairies scoring fifty-five points or less must be pasteurized by an approved efficient pasteurizer and by efficient methods In addition to the objections of the small dealers, one of the particular objections raised by councilmen voting against the ordinance was the question of pasteurization When they were made acquainted with the opinion of authorities at the present time on the effects of pasteurization, this objection was overcome The objection of the small dealers to the ordinance was likewise not well founded as in reality the ordinance places all dealers on an equal footing with regard to the matter of handling inspected or pasteurized milk The new ordinance is a fairly good one and may be improved as the necessity for such improvement is shown It embodies the recognized foundation principles for the production of safe milk-supplies for cities—inspection of cattle, equipment and methods, conditional pasteurization, and the maintenance of the proper temperature The standards established, however, are really too low

COUNTY PUBLIC HEALTH OFFICIAL

In Fulton County Ga it has been proposed to create an official with the title "Doctor of Public Health whose duties would be considerably broader than those of the ordinary county health officer as he now exists in many states The Atlanta *Journal*, in commenting on this proposal and the lack of enforcement of the present inadequate health laws of that state, says

> We have delivered ourselves of certain admirable opinions [health statutes] and have then left them to take care of themselves It is for the purpose of making these statutes and regulations really count for the daily benefit of all the people that the office of Doctor of Public Health has been proposed Such an official would be definitely responsible for sanitary conditions throughout Fulton County He would regularly inspect all sources of water-supply sewage and garbage disposal, public buildings and premises with particular reference to the schools he would be alert to discover and check every possible source of contagion he would [illegible] that all dairies bakeries and factories where food products are made or dispensed observe the laws for the public's protection The work of such an official would be far more than merely corrective it would be constructive and educational

We understand that in one or more co of Carolina such an office has ted County Superintendent in each county a health official who would devote his whole time to the different aspects of public health and sanitation is a good one Much more effective work could be done by such an officer working in the circumscribed area of a county than by the occasional or spasmodic efforts of the ordinary county health officer or by the more widely distributed and attenuated efforts of the present state health boards Some such plan is undoubtedly to be a development of the near future in dealing with the important question of public health and sanitation Ultimately, when the public has become educated to the importance of the physical welfare of human beings, we shall have county, state and national departments of health, all cooperating

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[2] Kolmer Jour Infect Dis 1912 xi 50

THE FIRST ESSENTIAL IN THE TREATMENT OF THE SICK

In the treatment of human ailments, the matter of first importance to the conscientious physician is the diagnosis "What is causing the trouble?" On the answer to this question depends the treatment, no matter whether the "doctor" is a regular physician an eclectic, an osteopath, a homeopath, a chiropractic a Christian Scientist, a mental healer or what not The first essential is the diagnosis, and unless the "doctor" is sufficiently well trained in the fundamental medical sciences to make a diagnosis, he is not qualified to treat the patient intelligently by any method whatever Treatment is certainly of great importance, and from the patient's point of view is doubtless the most essential point But without a knowledge of the disease — of the actual condition — any treatment would be pure guesswork, unscientific and as liable to do harm as good These fundamental facts and principles are so often ignored in discussion of sectarian cults and fads that a recent clear decision[1] by the United States Supreme Court is most encouraging In a discussion of osteopathy the court made the following statement

> An osteopath professes to help certain ailments by scientific manipulation affecting the nerve centers It is intelligible, therefore, that the state should require of him a scientific training He, like others must begin by a diagnosis It is no answer to say that in many instances the diagnosis is easy—that a man knows it when he has a cold or a tooth ache For a general practice science is needed

At the same time the court distinguishes between osteopaths and nurses and masseurs in the following statement[2]

> An osteopath undertakes to be something more than a nurse or a masseur, and the difference rests precisely in a claim to greater science which the state requires him to prove The same considerations that justify including him (under the requirements of the practice act) justify excluding the lower grades (nurses and masseurs) from the law

The court therefore has pushed aside the masses of argument regarding the *"rights" of this, that or the* other medical sect, and has revealed the real point at issue—the necessity for sufficient fundamental knowledge of the human system to qualify one to make a diagnosis The court emphasizes that in order to make a diagnosis the practitioner of osteopathy as well as the physician must have had a scientific training A scientific training is particularly essential since many diseases to be successfully treated require scientific methods of diagnosis For example, the successful use of serum in the therapeutic or prophylactic treatment of a disease, such, for instance, as diphtheria, requires a positive knowledge of the particular form of bacteria causing the disease, this knowledge can be gained only by the use of the microscope and by scientific laboratory methods The same may be said regarding malaria, syphilis and other diseases which can be positively diagnosed by scientific methods only Mere guesswork in the diagnosis of such diseases should no longer be tolerated This scientific training is essential for every practitioner of the healing art regardless of the "school" to which he may belong or the particular "methods" of treatment which he may profess to use *The duty of the state,* therefore, is to provide an educational qualification which will guarantee that every licensed practitioner shall be *competent to make an intelligent diagnosis* Hence, separate boards and special educational standards for certain cults, instead of being essential, are *eminently unfair, and not for the best interest of the* public Certainly the public has the right to expect that only those who are competent will be given the state's endorsement, *conferring on them the right to* treat human ailments

STATE LICENSE EXAMINATION FEES

So far as we have been able to learn, no other civilized country exacts so little of those who seek the right to practice medicine as do the various states in this country This is true, not only with regard to educational qualifications, but also and particularly with regard to fees charged Some of the state examining boards argue the impossibility of requiring practical laboratory and clinical tests at these examinations or of employing experts to conduct them, because of insufficient funds The enforcement of more effective measures for testing the qualifications of those who desire to practice medicine therefore demands a decided increase in the finances of the licensing boards, and unless these finances can be provided generously by state appropriations—the better plan—they must come from the fees of applicants In the various states at the present time the fees charged range from $10 to $25, the majority having the lower fee In other countries the fees are very much higher In the various provinces of Canada, the fee ranges from *$75 to $200 In England, according to Mr Hallett*[1] the fee charged each applicant is about $210, while in the various South American countries the fee, at least *for foreign practitioners, ranges from $400 to over $600* In other countries furthermore, examinations are not necessarily conducted by the regular board members, but by *medical practitioners* who are expert examiners *in the* various branches, and who are especially employed for the purpose In England, for example, according to Mr Hallett,[2] *ten physicians,* ten surgeons and nine obstetricians are appointed as examiners for a term of four or five years, and it has never been found difficult to keep the positions filled from among the ablest physicians and surgeons of England In fact, it is looked on as a high honor to be asked to serve as an examiner Considering, therefore, the great need in this country of more effective methods at state license examinations and the increased cost of the examination by the use of such methods, it is quite clear that a generous state appropriation should be made for the purpose Otherwise a decided increase in state license fees is both necessary and justifiable

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[1] Ira W Collins vs State of Texas (U S) 32 S C Rep 286

[2] The Journal A M A August 3 p 3[illegible]

[1] Hallett F G The Journal A M A March 16 p 709

[2] Ibid p 762.

SPURIOUS FOREIGN CREDENTIALS

Judging from investigations now being made by the biographical department of the Council on Medical Education there are between three and four hundred physicians practicing medicine in this country under spurious foreign credentials The department has been securing an official check on those practicing in this country who claim graduation from foreign medical schools, with the astounding result that from one-fifth to one-fourth of these "doctors" are reported as not having graduated from the institutions claimed Actual graduates of foreign medical schools, such as those of Edinburgh, Berlin and Vienna, should doubtless be given the privilege of obtaining the license to practice medicine in this country, since these institutions have long been recognized as sources of thoroughly qualified physicians Nevertheless no foreigner, whatever his claim, should be registered until his credentials have been carefully verified There needs to be more care taken to prevent charlatans from masquerading under spurious credentials as graduates of recognized foreign medical schools Some of our states in the past have been only too lenient with the crooks at home, there is certainly no reason for letting down the bars for those from abroad

SOCIAL LIFE OF THE MEDICAL STUDENT

Much attention has been given in recent years to the educational qualifications of the medical student and much has been written regarding the best methods of instilling into him the required amount of medical knowledge, but practically nothing has been said or done regarding his social life during the long four years of his medical course The plea of Dr J Collins Warren[1] for suitable dormitories and other provisions for the student's social life therefore is worthy of careful thought Says Dr Warren "The medical student, unlike the college undergraduate, is drawn toward the great centers of population and, therefore, unable to enjoy those advantages which time is constantly showing are of so much importance to the moral as well as the physical make-up of the member of the academic community The medical student is usually tucked away in some Latin quarter, or its equivalent, situated in that part of the city where a great hospital usually finds its home He has to live in unfavorable surroundings, and his means often do not permit him to indulge in more luxurious quarters than a hall bedroom Thus, as a rule he is in insanitary surroundings and often exposed to contagious diseases 'And it is this particular class of young men to whom the learned faculty preach about the laws of health" With the hard work required to master the course laid down by the average medical college, it is clear that much depends on the student's surroundings, his habits, his food his recreation and his companions Nevertheless, along these lines the medical student, often for the first time away from home influences and in a large city is left mercilessly to shift for himself So while millions of dollars are being spent on architecturally beautiful buildings and on marvelously equipped laboratories, is it not time that more attention be paid to the social and physical welfare of those for whose training so much has been expended? The student needs a medical training, surely, but of what value is that training if he leaves the institution a physical or moral wreck? Along with the progress being made in other phases of medical education the social aspect of the medical student's life should also receive some attention

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[1] Warren J Collins Boston Med and Surg Jour June 13 1912 p 875

Medical News

COLORADO

Garbage for Hogs—The board of supervisors of Denver has passed an ordinance requiring that pork from garbage fed hogs be so labeled wherever exposed for sale

The Health of Denver—The annual report of the health department of Denver shows a death rate of 16 04 per 1 000 and records the death of 2,025 males and 1,390 females Pulmonary tuberculosis led in the death causes, pneumonia was second, nephritis third and cancer fourth The local mortality from diabetes is reported to have doubled within the last five years The chief increases are in the deaths from diphtheria and scarlet fever, while deaths from measles and whooping cough decreased in number

ILLINOIS

Chicago

Provisions of the New Milk Ordinance—The City Council passed a new milk ordinance August 14 taking effect August 27, which contains the following provisions Two *grades of* milk are provided for—inspected" and pasteurized Inspected milk may be produced only in dairies inspected by the health department and receiving a department permit subject to the condition that every case of contagious disease in connection with the dairy shall be reported at once Permits will be issued only to dairies to which department inspectors give scores of 65 or more points out of a possible 100 on equipment and methods These points cover the condition health, comfort, feeding and watering of the cows the condition of the milk room stable and utensils and the methods of handling the cows and the milk from its first production to its storing and its transportation Before June 30 1913, the producers must file certificates showing their cows have been inspected by a competent veterinarian and are free from tuberculosis and other infectious diseases Rules are prescribed for equipment and methods as a basis for the scoring Milk produced in conformity with standards slightly lower than these, from dairies scoring at least 55 points and under less stringent regulations must be pasteurized The efficiency of the pasteurizer must be approved and in case of dispute this question is left to arbitration between the owner or operator and the department All milk coming into Chicago must be kept at a temperature at least as low as 60 degrees and after June 1, 1914 at a temperature not higher than 55 degrees On Jan 1 1915 the score for dairies producing inspected milk is raised to 70 Maximum bacterial counts for both grades of milk are established No milk failing to meet the requirements of one of these two grades will be permitted on sale in Chicago

MAINE

Personal.—Dr Adam P Leight[illegible] from a stay of a year abroad [illegible] Portland.

Hospital and Sanatorium Notes—A new building is being constructed for the Portland charitable dispensary——Dr Francis J Welch, Portland, has recently opened a private sanatorium in East Parsonsfield for the treatment of tuberculosis——Dr Philip H S Vaughan has opened a private sanatorium at Yarmouth for the treatment of neuropathic and psychopathic diseases

NEW JERSEY

Typhoid at Woodbury—The epidemic of typhoid fever at Woodbury has not abated and up to July 23, there had been eighteen cases and one death

Typhoid at Moorestown Traced to Carrier—The local and state experts, who have been investigating the epidemic of typhoid at Moorestown, declare Ellis Kensler, superintendent of the David Roberts dairy farm, to be a typhoid carrier Up to August 13 there was a total of thirty seven cases The health board ordered all milk sold in Moorestown to be sterilized and a citizen's meeting was held in the Town Hall, August 12, to discuss the source from which the town's water is drawn—the upper branch of Pensauken Creek

Dairy Closed Because of Typhoid.—Up to August 9, thirty cases of typhoid had been reported to the Board of Health from Moorestown and from Mount Laurel township, adjoining The inspectors found that with but one or two exceptions, every victim of the fever had been using milk from one dairy The town's water supply has also been found to be badly infected. Blood tests of employees at the suspected dairy have shown that one employee has a mild case of "walking typhoid," while several employees of a milk distributing station are showing symptoms of the disease The state authorities have closed the infected dairy, ordered that all milk sold in the town be pasteurized and have posted public notices, warning residents to boil all water used for drinking purposes

NEW YORK

Reporting Industrial Diseases—The New York State Department of Labor, Bureau of Labor Statistics, is sending to all physicians of the state blank certificates of industrial disease together with a booklet on the "Reporting of Industrial Diseases" which contains the reporting law, the purpose of reporting, the occupation diseases and a list of harmful substances and their effects For the material contained in this booklet the department is indebted to the New York Academy of Medicine, especially to Dr W Gilman Thompson of the Cornell University Medical College

All New York Medical Colleges to Teach Public Health and Sanitation—The State Department of Health has, with the cooperation of the deans of all the medical colleges in the state, formulated plans to include on the curriculum of each medical school a systematic course in public health and the prevention of disease Some ten of the colleges have already been doing commendable work along this line A committee consisting of Dr William A Howe Deputy Commissioner of Health, Dr Heffron dean of Syracuse University College of Medicine, Dr Royal S Copeland, dean of the New York Homeopathic Medical College, Dr Bensel, representing the Columbia University College of Physicians and Surgeons, and Dr William H Park, of the University and Bellevue Hospital Medical College, will meet shortly to draw up a syllabus of a course of instruction which will be submitted to Commissioner Porter and by him recommended to the deans of the medical schools Part of the lectures in the course will be given by representatives of the State Health Department and in some instances by representatives of city health departments

New York City

Personal—Dr Arthur J Keating was thrown from his automobile August 10 and sustained a dislocated shoulder and a fractured ear drum——Dr Robert B Scofield, Yonkers, while driving his touring car collided with a street car and had two ribs broken while his aged mother who accompanied him received injuries which will probably prove fatal——Dr and Mrs John A. Hartwell Dr Edward L. Corbett, Dr A. B Wadsworth and Dr G H Grant have sailed for Europe

Infant Death Rate Continues to Decrease.—For the week ending August 10 the infant death rate was lower than for any previous week this summer There were 193 deaths for the Borough of Manhattan against 205 for the corresponding week of last year The three other boroughs are still close to the records of last year There have been 572 fewer deaths of infants under one year of age in the greater city this year than during the same period of 1911 During the week there were only thirteen deaths among infants cared for by the milk stations

Good Work Among Babies Continues—The report of the Babies' Welfare Association for July shows that the enrollment of babies increased from about 14,000 to 18,000‘ The New York Diet Kitchen has shown the greatest increase in enrolment, at the beginning of the month there were 983 babies on the lists of their eight milk stations and on August 1 there were 1,347, while only eight deaths have been reported among the entire number In the 55 stations run by the Board of Health the enrolment was increased during the month from 9,000 to 13,000, and among these there were only eight deaths

The Typhoid Situation in Greater New York.—An increase in the number of cases of typhoid at this season of the year is expected and this year has proved no exception to the rule There have been 349 cases reported in the greater city from August 1 to 16 There have been 236 cases in Brooklyn and Queens during this time The Borough of Brooklyn had 138 cases as compared with ninety two for the the first fifteen days of August, 1911 In Queens there were ninety eight cases or practically four times as many as during the same period of last year Manhattan has had only ninety six cases as compared with 172 for the corresponding period of 1911 The Bronx has had sixteen cases as compared with sixty nine for the corresponding period of last year The report that there was an outbreak of typhoid in the Wall Street district due to the use of bottled water has been pronounced as unfounded by the health department Thus far the health department has not succeeded in tracing the Brooklyn epidemic to its source The advisory committee on the administrative control of typhoid will meet next month in consultation with the board of health This committee was formed early in the year and consists of Prof William T Sedgewick, Prof George C Whipple, Prof C A E Winslow, Dr John W Brennan, Dr Alexander Lambert, Dr Herbert Pease and Prof Thomas W Hastings

PENNSYLVANIA

State Board Will Urge More Rigid Examinations—The State Medical Board announces that 30 per cent of the medical school graduates who underwent examination by the body last June failed to pass and were denied the right to practice in this state The board recently revised its system of examination and the results showed even a greater need of advancing the five year medical course, with probationary practice in hospitals, demonstrative examinations and the elimination of low standard colleges

State to Close Unsanitary Dairies—On August 5, a conference was held by Dr C J Marshall, state veterinarian, and his corps of inspectors, and attended by a number of milk and dairy experts Among the latter were Dr John R. Mohler, chief of the federal bacteriologic department, bureau of animal industry, Washington, Dr John H. Turner, chief milk inspector of the District of Columbia, N B Critchfield, secretary of agriculture of Pennsylvania, Dr L. A. Klein, dean of the veterinary department of the University of Pennsylvania, Dr H. B Felton, milk inspector of Philadelphia, Dr W S Gimper, director of milk hygiene of Pennsylvania, Dr W H. Ridge, supervising inspector, Dr Turner, supervising inspector of Bucks County, and Dr Charles Schaufler, who has charge of the federal meat inspection in this city The meeting was called to discuss plans for the improvement of the milk and dairy service According to Dr Marshall, of the 100 000 dairies in this state, 10 per cent or 10,000, are so filthy as to be a menace to health about 57,000 are near to being nuisances, while only 60 per cent meet all sanitary requirements

Philadelphia

No Decrease in Typhoid.—The records of the Bureau of Health for the week ended August 17 showed forty seven new cases of typhoid, the same number reported the previous week

To End Dispensary Abuse—The Philadelphia County Medical Society which has been making a thorough investigation of the abuse of hospital and dispensary privileges, will present a bill to the next legislature making it a misdemeanor, punishable by fine or imprisonment, for a person able to pay for medical treatment to accept gratuitous service from a charitable institution

Hospital for Immigration Station Necessary—According to Dr A A Cairns, chief medical inspector of the Bureau of Health much unnecessary illness and expense is imposed on Philadelphia by lax inspection and inadequate facilities at the state quarantine station The state and United States quarantine stations pay great attention to the more virulent contagious diseases, small pox bubonic plague and trachoma, but are lax when it comes to measles, chicken pox and scarlet fever When the new immigration station at Gloucester is put into operation, even greater difficulties will be encountered as there is no hospital for contagious diseases in Gloucester, Camden or South Jersey and Dr Cairns urges the erection of a state hospital for contagious diseases at Marcus Hook

U S Hospital Ship Here Fighting Plague —The U S Marine Hospital ship, *W D Bratton*, which arrived at this port August 11, has disinfected seven vessels The principal object of the *Bratton* is to kill the rats on board ships entering this port and for that purpose uses sulphur and is also equipped with the "Harker" system, which is a method of pumping poisonous gas into a steamer Dr Hugh S Cumming, of the Marine Hospital Service, assisted by Drs J Schwartz and D Glassberg, is the physician in charge United States government pathologists have examined about fifty rats, taken from vessels arriving at this port and in no case have they discovered any trace of bubonic plague In the same way the laboratory of hygiene of the department of health has been examining rats brought from all parts of the city and has found no evidence of any disease However, the response to the request for rats by the Health Bureau has not been great and the department is most anxious to obtain rodents from the water front

TEXAS

New Officers —Central Texas Medical Association at Gatesville, July 9 president, Dr Edwin Graves, Gatesville, secretary, Dr H F Connally, Waco

City Bacteriologist Appointed State Inspector —Dr J S Abbott, food and drug inspector, has appointed Dr I B Lee, bacteriologist of San Antonio, inspector in the food and drug department with full authority to act The local board of health is conducting a vigorous campaign against the sale of *impure milk and against unsanitary conditions prevailing in* some of the dairies of Bexar County

Personal —Dr Ernest Boston, Taylor, while returning to his home after a professional call August 9, was assaulted and would have been robbed but for prompt interference ——Dr J R. Nichols, Austin has been appointed oculist of the Confederate Home, Austin, vice Dr J E Howze ——Dr E B Osborn, Cleburne, has been appointed a member of the State Board of Medical Examiners, vice Dr J D Osborn, resigned. ——Dr P D, Barnhill, Brenham, was seriously injured by the overturning of his automobile, July 26 ——Lieut W L. Robinson, Hubbard, G N Decherd, Austin, and J L Denson, Cameron, have been commissioned captains in the Medical Corps of the National Guard of Texas

Hospital and Dispensary Notes —A free dispensary is to be established in Waco under the supervision of the city physician The dispensary for the present will be open three times a week between the hours of 3 and 4 p m ——The old City Hospital, Dallas, has been reopened for the reception of the city's patients The buildings have been moved back from the original location and have been thoroughly cleaned and disinfected ——The Arlington Hotel has been sold to Drs W R. Newton, Buckholts, and Eduard Rischar, Chicago, who will convert the institution into a hospital and training school for nurses after it has been thoroughly remodeled and equipped ——Tarrant County Medical Society has endorsed the $100,000 bond issue to be expended in the building of a new down town hospital in Fort Worth ——A movement has been commenced in San Antonio to raise $50,000 for a new hospital to be operated by the Free Clinic and Hospital Association

VIRGINIA

New Officers —Augusta County Medical Society at Staunton, August 7 president Dr Franklin McC Hanger, secretary Dr Kenneth Bradford both of Staunton ——Piedmont Medical Association at Orange, July 28 president Dr D F Weaver, Liberty Mills, secretary Dr I C Scott, Orange

New Hospital.—A charter has been granted to the Stuart Circle Hospital Corporation Richmond with a capital of $50 000 The new institution is to be located on Monument Avenue and the officers of the corporation are Drs L C Bosher president Dr Manfred Call vice president Dr Greer Baughman, secretary, and Dr Charles R Robins, treasurer

GENERAL

Southern Medical Association to Meet —The Southern Medical Association will hold its annual meeting in Jacksonville Fla in November under the presidency of Dr J M. Jackson, Miami

Change of Name to Public Health Service.—By the act of Congress approved Aug 14, 1912, the name of the U S Public Health and Marine Hospital Service was changed to the U S Public Health Service The functions and duties of the service have been extended and a revision in the salaries of the officers made, as noted in THE JOURNAL last week.

Otologists Hold Meeting —The Ninth International Otologic Congress was held in Harvard Medical School, Boston last week and the following officers were elected president, Dr Clarence John Blake Boston, vice president Dr B Alexander Randall, Philadelphia secretary treasurer Dr Henry O Reik Baltimore, and assistant secretaries, Drs William F Knowles Boston, Ralph Butler Philadelphia, and Jesse W Downey, Baltimore The International Lenval prize was awarded to Dr George E Shambaugh Chicago, for his work on the anatomy and physiology of the labyrinth This is said to be the first time this prize has been awarded to an American

Warning Concerning Insurance Agent.—From several points in Illinois information is being received concerning an insurance agent, with the request that we warn the readers of THE JOURNAL against being victimized Our informants state that a Mr Sumner P Hinckley presents himself as representative of the Conservative Life Insurance Co of Wheeling W Va It is stated that he offers to appoint physicians as medical examiners, guaranteeing $25 00 a month medical fees for one year on condition that the physician takes out an insurance policy for which Hinckley takes the money Our informants state that investigation shows that the company repudiates the Hinckley appointments and victims secure only the insurance Our informants request us not to use their names, as they do not want to be called 'easy"

The Plague —The last case of plague in Porto Rico was reported August 6 making a total of forty seven cases Of these, thirty two occurred in San Juan The situation seems to be under control Rat proofing and the catching of rats are being pushed at San Juan and other points where the disease appeared ——Over a month has elapsed since the last case was reported from Cuba ——No additional plague rats have been found in New Orleans The work on rat proofing and extermination of rats is being actively carried on in other coast cities ——*Public Health Reports*, August 16 contains the antirat ordinances in force in the city of San Francisco They include the requirements found by Surgeon General Blue while in charge of the plague eradication work in San Francisco, to be necessary in combating the plague and are based on his recommendations These ordinances should be of interest to other cities threatened with plague invasion

Legislation Regarding Fake Cures.—The Sherley bill which is intended to correct the defect in the Food and Drugs Act in regard to misbranding as interpreted by the recent decision of the supreme court, was approved by the House of Representatives, August 19 The Sherley bill provides that any drug shall be deemed misbranded "if its package or label shall bear any statement design or device regarding the curative or therapeutic effect of such article which is false and fraudulent The supreme court, in a divided opinion decided in effect in the Johnson cancer cure case an account of which was given in THE JOURNAL, that the makers of nostrums might make any claims they desired in regard to curative effects, provided only that the strength and purity of the ingredients conformed to the requirements of the Pharmacopeia or were published on the label This decision defeated the efforts of the government to suppress the Johnson cancer cure fake and let down the bars for the exploitation of the public by almost any sort of fake cure

Clinical Congress —The third Clinical Congress of Surgeons of North America will be held in New York November 11 16 *The place of registration is the ball room of the Waldorf* Astoria where the daily program will be bulletined one day in advance and where printed programs of each day's clinics will be distributed The work of the congress will be divided into six branches namely general surgery gynecology genito urinary surgery orthopedics obstetric and eye ear nose and throat surgery In the evenings literary and scientific programs will be given as follows

Monday November 11—Presidential Meeting—Albert J Ochsner Chicago Address of the retiring president Edward Martin Philadelphia (president's address) Treatment of H[illegible] [illegible] William J Mayo Rochester Minn Surgery of the Large [illegible] Discussion by Charles H Peck New York City

Tuesday November 12—George W Crile Cleveland [illegible] ory of Certain Diseases With Special Ref[illegible] tions Howard A Kelly Baltimore [illegible] Discussion by George E Brewer New [illegible] Breslau Germany Indications and [illegible] terior Spinal Nerve Roots Charles [illegible] on Surgery of the Spinal Cord I[illegible] New York City

Wednesday November 13—Thomas S Cullen Baltimore Radical Operation for Cancer of the Uterus viewed from the standpoint (a) permanent cure (b) temporary relief Ernest Wertheim Vienna Austria Subject to be announced X. O Werder Pittsburgh The Cautery in the Radical Treatment of Cancer of the Cervix. Robert L. Dickinson Brooklyn Subject to be announced

Thursday November 14—W Arbuthnot Lane London England Chronic Intestinal Stasis John G Clark Philadelphia Summary of Results of Gastro-Intestinal Stasis Robert C Coffey Portland Ore Subject to be announced Richard R. Smith Grand Rapids Mich Subject to be announced Chevalier Jackson Pittsburgh Bronchoscopy Esophagoscopy and Gastroscopy (lantern demonstration) Myles Standish Boston Paper on Surgery of the Eye Ewing W Day Pittsburgh Otitis Meningitis the Indication of and the Operative Treatment for

Friday November 15—E G Abbott Portland Me The Treatment of Lateral Curvature of the Spine Discussion by John Ridlon Chicago and Royal Whitman New York City John B Murphy Chicago On Surgery of the Bones and Joints

PROGRAM OF THE HYGIENE CONGRESS

An inspection of the advance sheets of the preliminary program of the Fifteenth International Congress on Hygiene and Demography shows what a valuable medical and sociologic convention will be held in Washington September 23 to 28 It is interesting to quote from the program For example, the Section on Hygienic Microbiology and Parasitology will hold a joint session Thursday morning, September 24, with the Section on Control of Infectious Diseases and will take up the subject of poliomyelitis as follows

POLIOMYELITIS ETIOLOGY AND MODE OF TRANSMISSION

Etiology Prophylactic Measures Dr Netter Paris France

Epidemic Poliomyelitis in Norway Dr Francis Harbitz Christiania Norway

Sanitary Measures Against Poliomyelitis Messrs and Drs M Levaditi, Paris France Karl Landsteiner Vienna, Austria Simon Flexner New York Paul Römer Marburg Germany Alfred Petersson Stockholm Sweden

Etiology and Symptomatology of Poliomyelitis. Dr M Neustaedter New York

A similar session is to take up the subject of hookworm

HOOKWORM DISEASES

Biology and Terminology Drs M Breton and L Bruyant Pasteur Institute Lille France and Dr C W Stiles Washington D C

Eradication Drs Bailey K Ashford Porto Rico W S Rankin Raleigh N C Hiram Byrd Jacksonville Fla John A Ferrell Raleigh N C

Other interesting fragments from the program are

THE HEALTHFULNESS OF OCCUPATIONS

Industrial Accidents and Trade Diseases Messrs Frederick L. Hoffman Newark, N J Robert E. Chaddock, of Columbia University Henry J Harris Library of Congress Lucien March Director of Statistics of France Arthur Fontaine Director of Labor Paris

ALCOHOLISM AND ACCIDENTS SICKNESS AND MORTALITY

The Relation of Alcoholism and Consumption Dr Jacques Bertillon Paris.

Mortality from Alcohol in the United States Edward Bunnell Phelps Editor *American Underwriter*

Alcohol as a Predisposing Cause to Accidents and Occupational Disease Dr William F Boos

HYGIENIC MICROBIOLOGY AND PARASITOLOGY

Filterable Viruses Dr Borrel Paris France

Etiology of Measles. Drs Joseph Goldberger and John F Anderson Washington D C

A New Filterable Virus Pathogenic for Rats. Dr Frederick G Novy Ann Arbor

Experiments on the Nature of the Virus of Rabies Dr D W Poor and Dr Edna Steinhardt New York.

Transmission of a Malignant Tumor by a Filterable Agent Dr Peyton Rous New York

Etiology of Typhus Dr J F Anderson and Dr Joseph Goldberger Washington D C

HYGIENE OF INFANCY AND CHILDHOOD

Instruction in Child Hygiene Dr Mary S Macy New York.

Hygiene of City Babies Dr Adolph Baginsky Berlin

Teaching School Hygiene Dr Ira S Wile New York City

Open Air Schools With Breathing Exercises to Prevent Tuberculosis and Other Diseases Dr S A Knopf. New York

Fundamentals of the Hygiene of the Teacher Dr Grace N Kimball Poughkeepsie N Y

Campaign Against Favus in the Schools of Mexico Dr Manuel C y Troncoso Mexico

Transmission of Disease by Books Mr William R Reinick Philadelphia

Disinfection of the Posterior Nares—A Preventive Against Infection Dr John J Cronin New York

Syphilis and Gonorrhea in Children by Direct Infection Dr Abraham L Wolbarst New York City

Sex Instruction and Hygiene of Boyhood Dr Elias G Brown Director of the Mountain School Allaben N Y

The list of scientific sections into which the congress is divided is as follows

HYGIENIC MICROBIOLOGY AND PARASITOLOGY
DIETETIC HYGIENE HYGIENIC PHYSIOLOGY
HYGIENE OF INFANCY AND CHILDHOOD SCHOOL HYGIENE.
MENTAL HYGIENE.
HYGIENE OF OCCUPATIONS
CONTROL OF INFECTIOUS DISEASES.
STATE AND MUNICIPAL HYGIENE.
SEX HYGIENE.
HYGIENE OF TRAFFIC AND TRANSPORTATION
MILITARY, NAVAL AND TROPICAL (COLONIAL) HYGIENE.
DEMOGRAPHY

The portions of programs briefly given above illustrate the character and breadth of the scientific discussions to take place The full program is given in the ninth edition of the preliminary announcement which may be obtained of Secretary General John S Fulton, Senate Annex, New Jersey Avenue and B Street, N W, Washington, D C Any person who is interested in the study or practice of hygiene or demography may become a member of the Congress, entitled to take part in the proceedings, and to receive the published transactions, on payment of the membership fee of five dollars It is planned to hold, in connection with the Congress, an Exhibition on Health during the three weeks from September 16 to October 4, at which the hygienic and demographic work of the United States and its dependencies is to be illustrated The exhibition will be divided into the following groups

Group I Vital Statistics and Demography
Group II Growth and Nutrition Food
Group III Hygiene of Infancy and Childhood
Group IV Physiology and Hygiene of Exercise
Group V Housing
Group VI Industrial and Occupational Hygiene
Group VII Communicable Disease
Group VIII State and Municipal Hygiene
Group IX Care of the Sick Life Saving
Group X. Hygiene of Traffic and Transportation
Group XI Military Naval and Tropical Hygiene
Group XII Sex Hygiene

All communications concerning the Exhibition should be addressed to Dr J W Schereschewsky, Director of the Exhibition, Senate Annex, Washington, D C, who will promptly furnish prospectuses of the Exhibition and all other pertinent information on request

ITINERARY OF HYGIENE CONGRESS VISITORS

A group of physicians from Europe who are to attend the International Congress on Hygiene in Washington next month are to make a tour of some of the principal cities of the United States, as we have already announced Next week we will give the list of the physicians

PROGRAM OF THE MEDICAL STUDY TOUR THROUGH AMERICA

From Sept 17 to Oct 9 1912

September 17 Arrival in NEW YORK Lunch in the Plaza Savoy and Netherland hotels Dinner and the evening at Coney Island

September 18 Visit to the Battery Ellis Island and to Bellevue Hospital for general inspection and luncheon Then to the Rockefeller Institute and to Blackwells Island Evening 8 30 reception by the German Medical Society at Liederkranz Hall

September 19 Automobile trip to see upper part of the city—Riverside Drive Grant monument Central Park Public Library etc.

September 20 Automobile ride to the lower part of the city then to the Philadelphia and Reading Railway Liberty Street New York By ferryboat to Jersey City Luncheon in the railroad station restaurant Departure at 12 noon Arrival at PHILADELPHIA at 1 30 p m Rest at the hotel Afternoon reception by Mayor Blankenburg and inspection of the city hall Dinner at the Bellevue-Stratford

September 21 In Philadelphia as guests of the city and the local profession In the morning a trip through Philadelphia and Fairmount Park Inspection of scientific medical and educational institutions Special automobile drive for the ladies Invitation to tea from the ladies reception committee In the evening a banquet by the city and the medical profession

September 22 Departure from Philadelphia 10 a m Arrival at ATLANTIC CITY 11 a m Departure for Washington 12 midnight

September 23 Arrival in WASHINGTON 7 30 a m Headquarters at the New Willard and Raleigh hotels

September 24 to 28 In Washington at the Congress on Hygiene

September 28 Departure from Washington 12 noon

September 29 Arrival in CHICAGO 8 a m Breakfast at Congress Hotel and Annex Visit to the stock yards and trip through the city

September 30 In Chicago Inspection of clinics hospitals etc In the evening banquet

October 1 In Chicago Sight seeing Departure from Chicago 8 p m

October 2 Arrival at NIAGARA FALLS 8 a m Breakfast at the International Hotel carriage drive to Goat Island In the afternoon the gorge trip

October 3 Departure from Niagara Falls 9 a m Arrival in TORONTO 11 30 a m Lodging and meals at the King Edward Prince George Queens and Walker hotels Sight seeing trip In the evening reception by the university and the medical profession

October 4 Departure from Toronto 8 a m Arrival in KINGSTON 12 15 p m Special steamer trip with luncheon through the THOUSAND ISLANDS Arrival in MONTREAL 7 p m Lodging at the Place Viger Hotel

October 5 Sight seeing trips about Montreal In the evening a reception by the city and the University of Montreal

October 6 Departure from Montreal on a special train at 9 a m and arrival in BOSTON at 7 p m Copley Plaza Hotel

October 7 Sight seeing trips about Boston

October 8 Leave Boston at 12 midnight.

October 9 Arrival at ALBANY at 7 a m Then Hudson River Day Line to NEW YORK arriving at 6 p m Dinner on the steamer *Viktoria Luise* lying at the Hoboken pier

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug 10, 1912

The National Insurance Act

The British Medical Association has declined to accept a suggestion made by Mr Lloyd George, the Chancellor of the Exchequer, to appoint a committee for the purpose of bargaining with him as to the terms on which the profession will consent to work the medical benefits of the national insurance act, and has informed him that the association adheres to its demands previously placed before him The association argues that the figures supplied by the actuarial report obtained by the government on the practices in a number of sample towns (previously given in THE JOURNAL), so far from undermining its case, as the chancellor claims, on the whole support it These figures show that the present income of a physician spread over the population of the towns is $1 per head for an average of 1 8 attendances per annum—a figure which shows that a large number of the population is not attended at all, or insufficiently attended Under any system of contract practice in which the patient can demand unlimited attendance without extra cost the average number of attendances has been found to be about four per annum, and this is under systems in which there is no choice of physician It is certain that when the insured persons come under a contract system which allows free choice of physician the average number of attendances will probably be about five On this calculation the capitation fee of $2 demanded by the association compares unfavorably with the present remuneration Moreover, this fee is paid at present by the government for medical attendance on postal servants and about the same is paid for attendance on policemen and firemen In these cases, the persons concerned are picked lives, are living under excellent sanitary conditions and are invalided out of the service if they fall into permanent ill health On the other hand, the insured persons under the new act will not be selected lives, cannot be invalided out of the insurance service and must be attended at the same rate up to the day of their death Moreover, the profession feels that it is fighting for something even more important than adequate remuneration—its very existence as an independent body It is faced by an entirely new set of circumstances, the full bearing of which nobody can estimate The government proposes to set off a medical service which will at once include about 12 or 14 million people, a large number of whom have in the past received perfectly satisfactory attendance by direct arrangements with their own physicians There is every indication in the future that it will be sought to include the dependents of the insured persons, so that the service will at no distant date include four fifths of the whole population It thus becomes a matter not only of professional but of national concern to ensure that the conditions now set up shall be such as will give the public the choice of the best men and will not tend to lower the standard of the men entering the profession Under the conditions now offered the most experienced and trusted practitioners would decline to serve The recruiting of the profession will be adversely affected if in the future more work is demanded without corresponding increase of remuneration, if the profession is to be placed to a large extent under government and lay control, and finally is to be subject to conditions which will restrict quite unnecessarily the scope of private practice, which, even at a lower remuneration is preferred by the profession to any form of contract practice

A State Medical Service

There are many indications that in time the medical profession will be transformed into a state service Medical officialdom is constantly increasing Beginning with army doctors, health officers, factory surgeons and public vaccinators, school physicians have recently been created and under the insurance act a large number of tuberculosis officers are being appointed Moreover the proposed arrangement under the act for the medical attendance on 12 millions of people will involve making the majority of physicians, to a certain extent, public officials Many believe that the way out of the present deadlock lies in the appointment of whole time physicians to attend the insured These would of course be nothing more than officials Dr Benjamin Moore, professor of biochemistry in the University of Liverpool recently produced a book entitled The Dawn of the Health Age in order to demonstrate the necessity for entirely remodeling the present system of medical practice in the interests of the whole community He asserted that at present we possess sufficient knowledge of medical science to enable us to save at least 300 000 lives every year in this country alone," which could be done without costing the nation anything, on the contrary many million pounds a year could be saved He characterized the present system of state voluntary hospitals state and private physicians as chaotic During the meeting of the British Medical Association at Liverpool a State Medical Service Association was formed under Dr Moore's inspiration Its object is to advocate a state medical service on the following basis (1) the whole profession to be organized on the lines of the other state services now in existence, (2) entry to the profession to be by one state examination (3) each member of the service to be paid an adequate salary, increasing gradually according to the length of service and position in the service and to be entitled to a pension after a specified number of years or in case of permanent disablement (4) members of the public to have, as far as possible free choice of physicians but no physician to be called on to have charge of more than a specified number of patients, (5) one of the primary objects of the state service to be to unite preventive and curative medicine, all hospitals to be nationalized and used for the purpose of consultative, operative and therapeutic work at the request of and in conjunction with the patient's own physician, (6) the services of the state physicians to be open to every one rich or poor (7) the state medical service to be administered by a board of health under a minister of public health with cabinet rank assisted by expert medical advisers This movement was started before the insurance act was passed and is quite independent of the present *impasse* It is intended that the work of the association shall form a branch of sociologic science and membership is to be open to all prominent sociologists, whether lay or medical

Decline in the Number of Medical Students

In spite of the increasing population the number of medical students has been declining for some years In 1893 the number of students entering the profession was 1 747 while the number who qualified as physicians was 1,579 Since then the number has steadily declined till last year when the entries amounted to only 1,232 and the qualifications to 1,042 Several factors have contributed to this result The profession has been and is still overcrowded the principal factor is the higher standard demanded as a result of the advance of science The change in the length of the curriculum from four to five years has meant an increase in the cost of training of $750 The fears expressed by the British Medical Association in regard to a detrimental effect on the recruiting of the profession seem already to have been realized for a great drop has taken place in the number of entries for 1911—from 1,495 in 1910 to 1,232

The Census of England and Wales

The first and second volumes of the detailed abstracts of the census of England and Wales have just been issued On Sunday, April 2 1911, the population was found to be 36 070,492—an increase of 3,542,649 over the number living in 1901 The increase for the decennium was 10 9 per cent the lowest recorded In 1881 91 the rate was 11 65 and in 1891 1901, 12 17 This decline in the rate of growth is not due to falling off in the excess of births over deaths but to an increased loss by excess of emigrants over immigrants For although the increase per cent by births was 3 01 less than in the previous decade, this deficiency was more than counterbalanced by the fall in the death rate and the resulting natural increase by excess of births over deaths was 12 43 per cent against 12.39 The numerical difference between the natural increase and the actual increase which is accounted for as a loss by migration amounted to over 500 000 persons in the past decennium as against only 60 000 in the previous one Comparing the growth of population in other European countries for the same period the increase in the German Empire was 15 2 per cent in the Netherlands 14 8 in Switzerland 13 2 and in Denmark 12 6—all in excess of our rate In new countries of course the [illegible] is much greater Thus in the United States the percentage was 21 in Australia 18 1 in New Zealand 30 5 and in Canada 34 1 The average density of population in England and Wales is 618 persons per square mile The growth of town populations at the expense of country districts is shown by the fact that while in 1851 the urban and rural populations were approximately equal by 18[illegible] [illegible] the population were living in urban [illegible] the proportion had risen to 78 1

PARIS LETTER

(From Our Regular Correspondent)

Paris, Aug 2, 1912

Tuberculosis Among Children Living in Contact With Tuberculous Parents

I have already mentioned l'Oeuvre de Préservation de l'Enfance contre la tuberculose, founded eight years ago by the late Professor Grancher to save the children of tuberculous parents by removing them to the country among healthy peasant families To show statistically the value of the work of this society, Dr P F Armand Delille has gathered figures showing the fate of children of these tuberculous families not so assisted The investigation included 175 families, in which there were 787 children, of these 165 had died of tuberculosis, seventy three are now affected with active tuberculosis, sixty eight have died of other diseases including congenital debility, 323 healthy children have been cared for by the society, and 158 healthy children have not been so assisted Thus, then, the proportion of tuberculosis among children not helped by the society amounts to 238 out of 396, a proportion of more than 60 per cent, including only the cases of fatal and pronounced tuberculosis The proportion would be much larger if there were added to it the cases of latent gangliopulmonary tuberculosis among the children supposed to be well The 323 children of these families placed in the country are all well Moreover, out of more than 800 children placed by the society since its foundation, there have been in all four cases of tuberculosis, namely, one of tuberculous meningitis, one of cervical adenitis, one of intestinal tuberculosis and one of lupus of the hand, a proportion of less than 0 5 per cent These four cases, moreover, developed in the months immediately following the separation of the children from their families, showing that the children were already infected at the time of their separation

Admission of Persons Without the Bachelor's Degree to the Medical Schools

A recent decree has opened the schools of law, science and letters to large classes of persons without the bachelor's degree Ostensibly it does not affect the admission of students to the medical schools, but, as Professor Grasset of Montpellier points out, it will actually allow the entrance of persons without the baccalaureate degree and will therefore be a dangerous measure, since the possession of the four certificates of higher studies given by a *faculté des sciences*, namely, physics chemistry, botany zoology or general physiology or general embryology, is accepted as a substitue for the baccalaureate at the student's entrance on the study of medicine Thus opening the *facultés des sciences* opens the way to the medical schools Professor Grasset emphasizes the dangers to medicine of permitting men to acquire the degree of doctor of medicine not only without Greek, without Latin, without philosophy but without any bachelor's degree

The Dieulafoy Prize of the Academy of Medicine

Madam Dieulafoy, widow of the late clinician, has given to the Académie de médecine in memory of her husband, the sum necessary to found a prize of $400 (2 000 francs) which will be awarded every two years to the author of the best work on the subject of internal pathology

Genital Psychopathy

On July 30 Dr Picqué, surgeon of the hospitals of Paris read before the Académie de médecine an interesting paper on this subject Without undervaluing the important rôle that the uterus may play in the production of certain deliriums, Picqué shows that this rôle has been singularly exaggerated of late, especially abroad Cases have been rare in which the cure of a uterine affection has not resulted in the disappearance of the concomitant mental trouble Clinical observation proves every day that uterine lesions no longer deserve the special place they formerly occupied in psychiatric nosology and this organ has no special properties of reaction with the brain Any lesion of any organ or tissue may through infection produce identical effects on the brain In numerous cases the extirpation of an infected uterus or any other organ readily leads to the disappearance of mental trouble But even if it be admitted that infection may produce certain psychopathic conditions which disappear on the extirpation of the focus of infection does the suppression of the menstrual affection cause the appearance of mental troubles as has been asserted? It may be unhesitatingly said that no psychopathic consequences follow removal of the uterus Picqué declares that out of 450 women in the Villejuif asylum he could find only seven who had been placed there in consequence of a surgical operation In these seven patients it was necessary to eliminate two general paralytics and two psychopathics who had been placed in the asylum once or twice before being operated on This leaves three cases of psychosis after the artificial menopause in a population of 450 insane The occurrence therefore seems exceptional

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, August 2, 1912

Personal

Professor Romberg of Tübingen has accepted the call as professor of internal medicine to the first medical clinic at Munich Through this acceptance the Munich medical faculty has gained an advantage over the Berlin faculty, a circumstance which we of Berlin may well regret

Professor Waldeyer has been elected an honorary doctor of the university at Oxford, and an honorary member of the Academia Romana at Bukarest

Professor Eversbusch, director of the Munich eye clinic, has suffered a stroke of apoplexy

Meeting of the German Scientists

The meeting of German scientists and physicians is to take place at Munich in the middle of September, the program of the general session presents a series of interesting addresses Professor Czerny of Heidelberg will discuss the "Non Operative Treatment of Tumors" Professor Becher of Münster will speak on "Life and Animation" *(Leben und Beseelung)*, and the distinguished Berlin physician, Professor Nernst, will discuss "The Newer Development of Thermodynamics" Reports will be given on modern military surgery, the heredity and determination of sex and the science of life in its significance for present civilization The banquet, which was to be given by the municipal authorities of Münster, was omitted at the wish of the executive committee A request of this sort has often been made because it was thought that such festivities were a superfluous burden for the cities which entertain the association of scientists, and for this reason many a city might be hindered from soliciting the meeting of the association. It is the desire of the association that its meetings may be held in as many places in Germany and Austria as possible

Reduction of the Consumption of Alcohol in Germany

I have several times referred to the resolution adopted in 1909 by the social democratic party, by which all workmen were incited to avoid the use of spirits The results of this action, as they are given by the official organ of the social democratic party, *Vorwärts*, are well suited to present a new and brilliant example of the discipline of this party In comparison with 1907 1908, there have been produced and consumed from October, 1909, to June, 1912, about 1,500,000 less hectoliters (39,630,000 gallons) of alcohol As a hectoliter of alcohol will, on the average, make 3 hectoliters of whisky, the use of whisky as a beverage has been reduced, in the period mentioned, more than 4,000,000 hectoliters (105,680,000 gallons), that is, for the whole of Germany about 430,000 hectoliters (11,360,600 gallons) per day

Municipal Crematory in Berlin

In accordance with the law for permitting cremation in Prussia, adopted some time ago, after overcoming a number of difficulties interposed by the church authorities, there is to be erected in October of this year a crematory in one of the Berlin cemeteries Without doubt the number of cremations of Berlin citizens will then be considerably increased

Meeting of the London Royal Institute of Public Health in Berlin

This society held its annual meeting in Berlin, July 25 27 It is unusual to hold this session outside of England, but according to the Transactions there were two reasons for doing this In the invitation sent out by the president of the society to the English municipal authorities it was emphasized that not only the congress, but also the representatives of English cities, provincial councils and other health authorities would appreciate the opportunity afforded them to learn the sanitary arrangements of Berlin and its vicinity, and particularly the highly developed administrative and scientific methods The other purpose was of still greater importance, namely the promotion of a better understanding between Great Britain and Germany In order to serve the first purpose of the congress, addresses by German scientists were announced, in accordance with the desire of the congress management Among the 250 Englishmen in attendance were such distinguished hygienists as Sir Ronald Ross, Sir William Lever, former Surgeon General Sir Robert Jackson, now 85 years old, Professor Smith, the president of the Royal Institute, and the minister Earl Beauchamp, the president of the congress for this year The proceedings were satisfactory in every respect An excellent spirit was particularly evident during the official banquet At that time telegrams were read in which Emperor William and King George expressed their thanks in reply to the telegrams of homage sent to them by the congress

Comparison of the Health of the French and German Armies

An article by Professor Schwiening of the Kaiser Wilhelm Military Medical Academy, published in the *Deutsche medizinische Wochenschrift*, says that there has been in the German army during the last twenty years an almost constant reduction of the number of cases of tuberculosis (1890 91 3 3, 1909 10 1 9), while in France with slight variations tuberculosis has remained at the same level, or even an inclination to increase may be perceived (1890 5 2, 1909 6 8) With reference to tuberculosis of the lungs (in which the percentage is distinctly higher than in the German army) a reduction appears to have occurred within the last two years in the French army Schwiening's view, however, is that this decrease is only apparent. While in Germany each soldier in whom tuberculosis is discovered receives hospital treatment and remains isolated till he is discharged, in France a large number of tuberculous soldiers are annually discharged from service without having received military medical treatment Moreover, a considerable number of tuberculous soldiers die in France without treatment by the military surgeon Schwiening discusses further the important question on what this high frequency of tuberculosis in the French army depends For one thing, the French minister of war recently emphasized that there is no doubt of the marked extension of tuberculosis in the civil population, so that a great part of the soldiers are already infected at the time of their enlistment. The French statistics permit us to see that the number of tuberculous soldiers in the first year of service exceeds by far that of the later years (1909 in the first year 13 6, in the later years 6 03) Similar proportions are also apparent in the German army although not nearly so pronounced as in the case of the French If an average of the last four years is taken the French army lost in the first years of service 8 3 times as many from tuberculosis of the lungs as the German, and if those suspected of tuberculosis are included, 13 2 times Schwiening discusses further how it is possible that so many weak persons, generally those suspected of tuberculosis, are enlisted, and he finds the answer in the circumstances that the scarcity of those liable to military duty is the chief reason which compels the army surgeons to lower as much as possible the limit of unfitness, and that in consequence of this, many soldiers are enlisted who are not competent to meet the requirements of the service Furthermore, the fact must be taken into consideration that tuberculosis is considerably more prevalent in France than in Germany, a circumstance that has again the result that men are enlisted in whom there are as yet no sure signs or only slight symptoms of the disease In France 88 or 89 per cent of the entire population subject to military duty must be enlisted, in order to provide the requisite number of recruits, while in Germany 53 to 55 per cent are sufficient for that purpose From this it results that in France the number of those who are declared unfit for the service on account of *faiblesse de constitution* is on the average only 1 6 per cent of the entire number examined while in Germany about 8 5 per cent are rejected as unfit for active service on account of constitutional inferiority In France only the very weakest persons are freed from the service The high number of weak recruits according to Schwiening, influences not only the morbidity from tuberculosis in the French army, but also acts unfavorably on the condition of the army as a whole Especially striking are the continuously high figures of the more frequent acute communicable diseases The French minister of war Millerand in the discussion in the senate which I mentioned recently and to which Schwiening's article is a reply stated that the morbidity from typhoid fever had been reduced from 11 15 per thousand of the whole strength in 1888 to 3 36 per thousand in 1910, and the mortality from typhoid had diminished from 2 97 to 0 44 per thousand These figures are still considerably higher than those of the Prussian army, for here the morbidity from typhoid in 1909 1910 was only 0 38 and the mortality only 0 05 per thousand that is, fewer became sick in our army than died in the French

Marriages

George Everett Beilby, M.D, Albany N Y to Miss Nettie A. Nettleton, of Newark N J August 1

Harold Theodore Houg, M.D Racine Wis to Miss Rose Helen Behnken, of Lake Mills Wis, August 7

Louis E Saunders, M.D to Miss Edna Whitmore, both of Stewartsville Mo, at St Joseph, Mo, July 31

John A Parmenter, M.D Morse Bluff Neb to Miss Augusta Urban, of Prague Neb, June 19

Walfred Abow von Zellen M D to Miss Emma D Menge, both of L'Anse, Mich., August 2

Basil Linger, M D, French Creek W Va. to Miss Maude M Teter, at Grafton, W Va, August 3

Irving Sobotky, M D, Boston, to Miss Wilhelmina Burns Andrews of Brookline, Mass, August 6

Leslie Levi Wiles, M D Amsterdam, N Y, to Miss Helen Beattie, of Warwick, N Y July 31

Edwin Henes, Jr, M.D, New York City to Miss Irma L Manegold, of Milwaukee, August 5

Edwin Vail Lapham Brown M D, to Miss Frieda Kirchhoff, both of Chicago, August 10

Henry John Plenz M.D, to Miss Margaret Schultheis, both of Chicago, July 5

Mary M Taylor M D, and Rev John Nelson, both of Philadelphia, August 9

Deaths

Thomas B McClintic, M D University of Virginia Charlotteville, 1898, died in Washington, August 13 aged 39, from Rocky Mountain spotted fever, contracted while investigating the disease in Bitter Root Valley, Mont Dr McClintic was a native of Virginia and three years after his graduation in medicine entered the United States Public Health Service as acting assistant surgeon He was soon commissioned as assistant surgeon and in 1904 was promoted to passed assistant surgeon He was a member of the American Medical Association and of the Association of Military Surgeons of the United States Dr McClintic had extensive service on army transports and in domestic quarantine was engaged in yellow fever quarantine work in Tampico, Mexico, in 1904 was on duty at the Marine Hospital at San Francisco at the time of the earthquake was medical officer of the Revenue Cutter *McCulloch* on service in Alaskan waters was later sent to the Philippines where he served as quarantine officer at Manila At intervals between these various details he was engaged in special investigations at the Hygienic Laboratory, devoting especial attention to problems of practical disinfection In 1911 he began his studies in Montana on the disease which ultimately caused his death, he continued his investigations on this subject at the Hygienic Laboratory in the winter of 1911 12 and returned to Montana in March of this year to put into practical operation certain measures for the eradication of the disease from certain areas His work was highly successful and nearing completion when he contracted the disease Not a single case except his own, had occurred in the area in which he worked demonstrating that this dread malady can, by proper precautions be practically eradicated He contracted the disease from the tick bearing animals with which he worked Dr McClintic was one of the most efficient and popular of the younger officers of the Public Health Service His quiet unassuming and unselfish character endeared him to his colleagues and all who knew him his tact consideration and thoughtfulness made him popular even as a quarantine officer his efficiency, firmness resourcefulness and ever readiness for the most onerous and hazardous duties won for him the highest approbation of his superiors

Herbert Norris, M D University of Pennsylvania Philadelphia 1866 formerly a member of the Philadelphia College of Physicians who had resided since his retirement from active practice in Taormina Sicily died in Rochester Minn August 6 after a surgical operation

Manuel J Manent, M D Tulane University New Orleans 1900 since that time a practitioner of Orleans Parish La died at his home in Algiers, August 7 aged 11

Leon Vance Grove, M D Western Pennsylvania Medical College, Pittsburgh, 1892, of Renfrew, a member of the Medical Society of the State of Pennsylvania, consulting surgeon to the State Hospital, Mercer, local surgeon to the Bessemer and Lake Erie Railroad, while driving across an interurban track near Renfrew, August 6, was struck by a trolley car, and died on the way to the Butler County General Hospital, aged 40

William H, Palmer, M D New York University, New York City, 1859, surgeon of the Third New York Volunteer Cavalry throughout the Civil War, medical examiner of Providence, R I, for twelve years, coroner for nine years and later police surgeon, for one term president of the Rhode Island Medical Society, died at his home in North Woodstock, Conn, August 3, aged 83, from senile debility

Albert Matson Belden, M D College of Physicians and Surgeons, Baltimore, Md, 1888, formerly a member of the American Medical Association, first president of the Hampshire County Anti Tuberculosis Association, superintendent of the Norwood Sanitarium, Northampton, Mass, died at his home in that city, August 5, from pernicious anemia, aged 46

Frederick Earl Beal, M D University of Nebraska, Omaha 1894 a member of the American Medical Association and New York Academy of Medicine, clinical professor of physical diagnosis in the New York Policlinic Hospital, died in that institution, August 8, from pneumonia, aged 44

Christian P Seip, M.D Homeopathic Medical College of Pennsylvania, Philadelphia, 1868, of Pittsburgh, a veteran of the Civil War and a member of the State Bureau of Medical Education and Licensure, died in Atlantic City, N J, August 6, from heart disease, aged 69

Thomas Henry Brannan, M D Long Island College Hospital, Brooklyn, N Y, 1871, for many years a practitioner of Canal Dover, Ohio, and local surgeon for the Baltimore and Ohio Railroad, died at the home of his daughter in Cleveland, August 4, from uremia, aged 66

John M Gahringer, M.D College of Physicians and Surgeons, Keokuk, Iowa 1896, formerly a member of the American Medical Association and a practitioner of Oelwein, Iowa, died at his home in Grand Island, Neb, recently, from cancer of the throat, aged 47

Philip H Pensyl, M D Jefferson Medical College, 1864 of Mann's Choice Pa, assistant surgeon of the Fifty Sixth Pennsylvania Volunteer Infantry during the Civil War, died in the Memorial Hospital, Johnstown, August 5, from dysentery, aged 71

Bernhard Ludwig Wilhelm Theodore Hansmann, M D University of Göttingen Germany, 1856, for more than half a century an esteemed practitioner of Washington, D C, died at his home in that city, August 13, from senile debility, aged 91

George C Armstrong, M D Northwestern University Medical College Chicago, 1899, a member of the American Medical Association, formerly of Cambridge Neb, died in Los Angeles, Cal after a surgical operation, August 5, aged 42

Oscar C Collins, M.D New York University, New York City, 1860 a surgeon in the Confederate service during the Civil War a member of the Medical Association of Georgia, died at his home in Forsyth, August 4, aged 76

Robert Alfred Berry, M.D University of Virginia, Charlottesville 1882, of Montevallo Ala, for several years a practitioner of Birmingham, died in a sanatorium in Memphis Tenn, August 3 from nephritis, aged 50

Olive F Gruver Carson Acton-Filmer, M.D California Eclectic Medical College Los Angeles, 1896, died at her home in San Francisco August 4 from asphyxiation by gas, believed to have been with suicidal intent

Henry Roland Walton, M.D University of Maryland, 1850, formerly a member of the Medical and Chirurgical Faculty of Maryland, died at his home in Annapolis, August 8, from senile debility, aged 84

James B Hannah, M D Cooper Medical College, San Francisco, 1902 a member of the American Medical Association died at his home in San Francisco, July 28, from acute endocarditis, aged 48

Frank Cowan, M.D Long Island College Hospital, Brooklyn, N Y 1872 a member of the Ohio State Medical Association died at his home near Ashland August 7, from cerebral hemorrhage aged 63

J L Jackson, M D Cincinnati College of Medicine and Surgery 1884 died suddenly at his home in Chattanooga, Tenn August 2, aged 54

Lewis H Watson, M D Eclectic Medical Institute, Cincinnati, 1867, of Chicago, died in the Columbus Hospital in that city, August 13, after an operation for disease of the kidney, aged 70

Robert Hilton Walch, M D Illinois Medical College, Chicago, 1897, for several years a member of the faculty of his alma mater, died at his home in Chicago, August 12, from heart disease, aged 59

William B Goodman, M D Atlanta (Ga) Medical College, 1890, a member of the City Council of Nashville, Ga, and a trustee of the Nashville High School, died recently in Atlanta, aged 54

Leonard Morong Kimball, M D Pulte Medical College, Cincinnati, 1880, and later a member of the faculty of his alma mater, died at his home in Brookline, Mass, August 4, aged 64

John Black McClelland, M D Hahnemann Medical College, Philadelphia, 1879, a veteran of the Civil War, died at his home in Pittsburgh, August 4, from heart disease, aged 69

P Sudler Roberts, M D Jefferson Medical College, 1886, a member of the Medical and Chirurgical Faculty of Maryland, died at his home in Oxford, August 6, aged 66

Henry Light Trumbower, M D Medico Chirurgical College of Pennsylvania, Philadelphia, 1908, died at his home in Coopersburg, Pa, July 31, aged 33

Chalmers M C Prentice, M.D University of Wooster, Cleveland, Ohio, 1872, died recently from diabetes at the home of his daughter in Texas

Edwin D Gibson, M D Medical College of Virginia, Richmond, 1854, died at his home in Lignum, Va, July 27, from senile debility, aged 84

Charles L Schmidt, M D University of Wurzburg, Germany, 1871, died at his home in Escanaba, Mich, August 6, aged 63

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TYREE'S ANTISEPTIC POWDER

Now Advertised Direct to the Public as the "Best Preventative Known"

When the history of the 'patent medicine" business comes to be written impartially and fairly, it will be realized that we, the medical profession, have been in no small degree responsible for its growth Not a few widely advertised nostrums owe their commercial success solely to the ill considered use accorded them by physicians, to whom they were first exploited As a well known and brilliant advertising man once said

> The patent medicine of the future is one that will be advertised only to doctors Some of the most profitable remedies of the present time are of this class They are called proprietary remedies The general public never hears of them through the daily press All their publicity is secured through the medical press by means of the manufacturer s literature sometimes gotten out in the shape of a medical journal and through samples to doctors The *medical papers will reap the harvest and the physician himself* always so loud in the denunciation of patent medicines will be the most important medium of advertising at the command of the proprietary manufacturer In fact he is that to-day

Of the conditions here described probably no better example can be found than Tyree's Antiseptic Powder For years this preparation was advertised to the medical profession under claims that were fraudulent as to both composition and therapeutic effect Analyses published in THE JOURNAL[1] proved that the formula given out by Tyree was absolutely false and that the preparation was, essentially, nothing but a simple mixture of sulphate of zinc and boric acid

From the first it would seem, that the manufacturers of this mixture had for their objective point that period when, thanks to the use of the nostrum by physicians, it would be widely purchased by the public Lavish advertising was done in medical journals and Tyree's Antiseptic Powder gained admission to the pages of even those journals which required the publication of a "formula"—for a formula was forthcoming THE JOURNAL itself, until seven years ago, carried the advertisements with a "formula" until chemical examination proved the falsity of the formula, and of the therapeutic claims made for the product The medical profession in its turn prescribed the nostrum and the "original package" scheme did the rest

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[1] Oct. 20 1906 and May 18 1907

Now, it seems, Tyree considers his preparation so well known that he can be independent either of the assistance of the physician or of his good will For Tyree's powder now goes to the public direct and newspaper readers find it advertised as

> Ideal for douche
> Unequalled as a douche
> Best preventative known
> Unequalled as a preventative
> Has no equal as a preventative

And the following, whose very truth must bring the blush of shame to all physicians who have the interest of scientific medicine at heart

> Prescribed by physicians all over the world for twenty-one years
> Ask your doctor or send for booklet
> Used by doctors for the last twenty-one years
> One of the highest tributes paid Tyree's Antiseptic Powder is the fact that the most successful physicians have been using it for the last twenty-one years.

Not that Tyree has entirely forsaken the medical journals, although he seems to be dropping them one by one At the beginning of this year at least fifteen medical journals were carrying the Tyree advertisement, by March the number had fallen to seven, while in June the only journals carrying it were

Medical Record	*Chicago Medical Recorder*
American Journal of Obstetrics	*Pacific Medical Journal*

Those who answer the newspaper advertisements receive a free sample of the powder and several leaflets and circulars giving the various uses (?) of the nostrum Incidentally these leaflets advertise, in addition, Tyree's Elixir Buchu and Hyoscyamus Comp," which is recommended, in various combinations, for such conditions as acute nephritis, epilepsy, neurasthenia, gonorrhea and delirium tremens

Bearing in mind the claim that is made in the newspaper advertisements that Tyree's Antiseptic Powder is the "best preventative" known it is interesting to see what Tyree has to say to those druggists whom he offers to supply with circulars for free distribution

> As these circulars deal with the care of rubber goods for both medicinal and toilet purposes they are of great value to the customer and will be retained for further reference They are boosters for your rubber goods sales too

That a nostrum of this sort should go to the public is not surprising but that it should have reached the public through the instrumentality of the medical profession is a serious reflection on the judgment of physicians But the incident has a bright side That the exploiters of this nostrum no longer find it profitable to use medical journals as a means of getting their stuff to the public but must needs use the more expensive newspaper advertising is cause for optimism It means that physicians are no longer prescribing indiscriminately proprietary products and that they are refusing to be, what they have been in the past, the unpaid distributing agents for nostrum venders

METHOD OF STANDARDIZING DISINFECTANTS WITH AND WITHOUT ORGANIC MATTER

The attempt to form a standard by which the germicidal power of disinfectants can be estimated has as the result of numerous investigations gradually narrowed itself to comparison with the germicidal powers of phenol (carbolic acid) This relative value is expressed by what is known as the phenol coefficient Thus if a disinfectant is shown to have three times the germicidal power of phenol, it is said to have a coefficient of 3 In determining this figure as coefficient the trials must be made with the substance under examination and with phenol under exactly the same conditions as to time of action, amount and kind of germ acted on kind of medium in which growth is tested, etc Much depends on the method used Rideal and Walker devised a method which was based on the comparison of the relative dilutions which would kill the *Bacillus typhosus* within a definite time the choice of which was left to the experimenter The result of this latitude was that considerable variation in the coefficient obtained might occur from the figures of the same experiment The manufacturer in such a case might be trusted to take the figures most favorable to his product To obviate some of these defects, a commission appointed by the *Lancet* devised what is known as the '*Lancet* method" In this method the comparison is made between the lowest dilution of phenol and of the substance under investigation that will kill the *Bacillus coli* at the end of two and one half minutes A similar coefficient is determined for thirty minutes and the average of the two determinations is taken as the phenol coefficient

J F Anderson and T B McClintic reported[1] on a method which they consider an improvement on the *Lancet* method They adopt the *Bacillus typhosus* instead of *Bacillus coli* as the test organism and instead of MacConkey's bile salt medium, which is used in the *Lancet* method they used standards extract broth They also determined the exact amount of the culture to be used and measured it by a pipet instead of in drops as is done in the older method Instead of taking the time limit of two and a half and thirty minutes they use two and a half and fifteen minutes The standard obtained by this method they designate the Hygienic Laboratory phenol coefficient

In the first description of this method no organic matter was introduced As, however in the practical application of disinfection organic matter is always present it became desirable to take its modifying action on the germicidal power of a disinfectant agent into account Accordingly Anderson and McClintic have modified their method so that it may be used with the addition of organic matter The organic matter added consists of a solution of peptone and gelatin in water which is mixed with the typhoid culture in such proportion that by adding 1 1 c c of the mixture 0 1 c c of the culture is added

It is to be hoped that this method will be generally adopted and that health officers and others having occasion to recommend or to purchase disinfectants will base their opinions on the efficiency—or otherwise—of the various preparations as demonstrated by this method

Correspondence

The Use of Beans in Beriberi

To the Editor —In a 'Historical Note on the Use of Beans in Beriberi,' (July 20 p 201) you quote Dr William H Jefferys to the effect that beans have been used ten years or more in China to cure beriberi and that the U S Army Tropical Board has no claim of priority in teaching their value in this disease Dr Jefferys is undoubtedly correct in stating that *legumens (mongos)* have been used as a curative agent in beriberi for many years This is true not only of China out of Java the Philippine Islands and I believe the entire orient

At the time (Sept 30 1909) when the Tropical Board recommended a change in the Philippine scout ration reducing the rice and adding beans the belief in the efficacy of beans was rather hazy and indefinite [illegible] as if not the majority of investigators [illegible] [illegible] in theories of Hamilton Wr[illegible] [illegible] of a toxic epiphyte T[illegible]

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1 Bull 5- Hyg Lab.

did not claim to originate the legumen treatment of beriberi *From its studies of the actual dietaries of the Philippine* scouts (native troops) it had determined the relative amounts of rice and other foods necessary for health (Kilbourne, E D "Food Salts in Relation to Beriberi," *Philippine Jour Sc*, 1910, v, 127) and in its letter of recommendation to the adjutant general stated the maximum amount of rice allowable and the minimum amount of other foods, including beans, necessary for beriberi prophylaxis It was an accurate estimation of the necessary amounts of the different components based on their past performances Before that time the use of beans and rice and the proper proportion of each was a hit or miss affair The correctness of the findings has since been proved by the eradication of the disease (Chamberlain, W P "The Disappearance of Beriberi from the Philippine [Native] Scouts," *Military Surg*, 1911, xxviii, No 5, p 509) following the adoption of the recommended ration

This letter of recommendation antedated by a month or two the publication of Fraser and Stanton's feeding experiments with labor parties in the Malay Peninsula

In giving credit to Chamberlain and Vedder for the suggestion of this ration and the use of beans you are wrong The letter of recommendation was made by Captain J M Phalen, Medical Corps, U S Army, and myself, who then constituted the Tropical Board Major Chamberlain and Captain Vedder were not in the Philippine Islands at that time, they joined the board later Major Chamberlain, in his article on "The Disappearance of Beriberi *from the Philippine* (Native) Scouts" states this fact

Chamberlain and Vedder's subsequent work in attempting to determine the exact preventive substance has been most valuable but is not responsible for the eradication of beriberi from the scouts

E D Kilbourne, Columbus Barracks, Ohio
Captain, Medical Corps, U S Army

Beriberi Caused by Rice Stored in Damp

To the Editor —I have been much interested in reading the comments on beriberi in The Journal I cannot agree with the present theory of the cause, I believe that it is largely due to rice being stored in a damp place No other construction can be placed on the cause of the great epidemic at Chiengmai in the north of Siam, which occurred several years ago after the wettest season in twenty years During this epidemic hundreds of people died of beriberi on the side of the river where the floods were the worst and very few on the high side These people all eat the unmilled rice, the kind that the scientists tell us will cure the disease I have had an extensive experience with beriberi and never saw it except when the rice used for food had been stored in a damp place, when care was taken to store the rice in a dry place there was no beriberi

Charles S Braddock Jr, M D, New York,
Late Chief Medical Inspector Royal Siamese Government

Pellagra in Barbados

To the Editor —This island ought to afford scientists a good field in which to "run to earth" the real cause of pellagra, since the disease has been observed here only during the past twenty years As a physician of over thirty years' practice, I am sure of my statement The island is only 166 square miles in extent, a fact which would likewise aid in tracing the origin of the disease To zeists the contention that pellagra cannot be due to any known fungus in growing corn will be established by the fact that the disease was unknown on the island until twenty years ago, although corn had been grown here for many years previously A significant fact worthy of notice by zeists is this Previous to twenty years ago, corn meal was imported from the United States in oak barrels and the meal was thereby rendered impervious to rain and any other means of liquid contamination Now, however, meal and flour are imported in cotton sacks, and when thus exposed to rain, etc., it readily cakes in lumps which have to be crushed to pieces when being sold by the pound *In order to be so caked, undoubtedly a* fermentation has taken place, since I know that the meal is, through caking, often rendered so sour as to be unsalable I think this fact worthy of careful examination in arriving at the true cause of the disease

But aside from this, I am somewhat of the opinion that pellagra, or at least one form of it, is due to some kind of adulteration in the form of a preservative So called pellagra appears to manifest itself in two forms, in one form there is the usual inflamed and scaly condition of exposed surfaces, in the other, the first sign is a blackening or dark pigmentation of the extensor surfaces of the forearm, beginning from the elbow Such a pigmentation is also found on the knees The pigmentation may be the only sign for some months, ultimately, however, the tongue becomes bare and red and salivation is now a marked feature A significant fact in regard to pellagra is that authorities, previous to ten years or so ago, directed no attention to the mouth signs, the salivation, etc, but restricted their notice to the recurrent inflammation of exposed surfaces and the subsequent emaciation, associated with diarrhea, etc So general was this ignoring of the mouth conditions that the late Dr Cuthbert Bowen of this island, taking into consideration the sprue or psilosis condition of the mouth and the pigmentation of the skin, termed the disease "psilosis pigmentosa" and wrote a brochure on the disease This fact, I say, is *significant, tending to prove that there are or may be really* two diseases now known under the name of pellagra I hold to the opinion also that pellagra may be due to some intestinal parasite since, of the many medicines used by me, I find santonin of most efficacy

R G Lecorest, M D, Barbados, West Indies

Plague in Havana Controlled by Own Health Department

To the Editor —In your editorial (Aug 3, 1912, p 375) speaking of plague, you state "The work of eradicating the disease is being carried on by the Public Health and Marine Hospital Service in cooperation with the Department of Sanitation of Porto Rico, and by the local and United States authorities in Havana" As regards Havana, the above statement is incorrect and I am sure you will be pleased to make due acknowledgment of the facts on obtaining better information The United States authorities have had nothing to do with the eradication of plague in this city They have sent here a very efficient officer, Dr von Ezdorf of the P H and M H S to look after vessels sailing for United States ports, and we have assisted him, with pleasure, in the protection of American commerce and passenger travel But, if the plague has been eradicated promptly in Havana, it has been done by ourselves

Juan Guiteras, Director of Health

The Mongoos as a Plague-Carrier

To the Editor —Apropos of Dr Ruth's communication (The Journal, August 3, p 386) concerning the mongoos as a possible plague carrier, attention is invited to the following extract from page 123 of the annual report of the Surgeon General of the U S Public Health and Marine Hospital Service for the fiscal year 1910

> Probably the most important work undertaken in the plague laboratory during the fiscal year is that now in progress to determine the part played in the spread of plague infection by the mongoos These experiments were first undertaken at the request of Dr J S B Pratt of the board of health as a result of observations made by him that the mongoos seemed to disappear from a locality prior to an outbreak of human plague When Pharmacist J E Beck succeeded in infecting the first mongoos in this laboratory the peculiarities of the case proved a genuine surprise The mongoos was inoculated by the dermic method used with guinea pigs. The material used was spleen from a guinea pig that died of plague from inoculation from a case of human plague from the steamer *Nippon Maru* On account of the extreme ferocity of the mongoos it had to be chloroformed before being inoculated Death occurred in about eighteen hours and it was at first thought to have been caused by the chloroform Routine examination of the viscera was made however and plague bacilli were found in the spleen *The second mongoos inoculated died in*

three days of septicemic plague The third mongoos inoculated lived thirteen days Smears from its tissues were not positive, but a guinea pig was inoculated and died of plague

This work is not entirely original a few cases of mongoos infection having been reported by Simpson in 1905 But this is the first time as far as is known that the mongoos has been shown *to be a possible if not a probable plague carrier*

'The officials of the board of health at Honolulu regard this demonstration as very important and timely owing to the prevalence of the mongoos throughout the Hawaiian Islands Its influence on future insular quarantine and plague-prevention measures may be considerable

The preceding is taken from the report of P A Surgeon Ramus, Chief Quarantine Officer for Hawaii

Since this work was done mongooses have been regularly trapped in Hawaii and subjected to the same examination for plague infection as is customary for rats

The mongoos of Hawaii has the nefarious habits which Dr Ruth ascribes to that of Porto Rico and he is quite right in suggesting that the rodent should be destroyed if for no other than commercial reasons

J E Beck, Ph G , M D , Mobile, Ala

Queries and Minor Notes

Anonymous Communications will not be noticed Every letter *must contain the writer s name and address but these will be* omitted on request

THE QUESTION OF THE EXISTENCE OF SCARLET FEVER IN JAPAN

To the Editor —In the editorial columns of The Journal (July 20 1912 p 198) in a discussion of scarlet fever the statement is made that no race or country is immune from this disease I do not know that the question is one of supreme importance but this statement fails to coincide with statements which I have noted elsewhere Pepper says in his 'Theory and Practice (i 208) The disease [scarlet fever] is rare in Asia and Africa and is said to be (Wernich 1871) entirely unknown in Japan French in his Practice of Medicine (p 227) says So far as known the Japan*ese alone possess natural immunity*

A. Noel Smith M D Dover N H

Answer.—If we were content to quote authorities who do not speak from first hand knowledge, we would be satisfied to counterbalance Pepper and French by quoting Osler's Practice," p 130 "It [scarlatina] is a wide spread affection, occurring in nearly all parts of the globe, and attacking all races" The only reference Osler makes to racial immunity is "The natives of India are said to enjoy comparative immunity" It will be noted that Osler ascribes, not absolute immunity, but only comparative" immunity to East Indians In the quotation from Pepper, only hearsay evidence is presented, and that is based on "Wernich, 1871" at which date one would hardly expect accurate data from Japan on a medical subject French's statement is unsupported by other evidence We do not consider this a sufficient answer to our correspondent, however The question of scarlet fever in Japan can be best handled by quoting from those who are or have been on the ground

M Y Maveda (*Sei I Kwai Med Jour* Aug 31, 1898 translated in *Pediatrics*, 1898, vi, 544) says of scarlet fever, of which he goes on to give some clinical notes, Until lately this disease was little known in the Japanese islands it has become more frequent and the government has begun to take steps for its prevention' Baelz (quoted by A. S Ashmead, *Med Rec* , N Y., 1891, xxxix 358) says that while the disease is rare in the Japanese islands, it exists and that he had observed characteristic cases in Japanese youths and men (none in women and children) before the date of Wernich's statement quoted by our correspondent through Pepper J S Kirkendall (*Med Rec* Feb 21 1891, p 246) reports a case of scarlet fever in a Japanese student in this country

Notwithstanding this evidence, it must in fairness be admitted that the existence of scarlet fever among the Japanese is by no means proved beyond a doubt The point at issue is one of diagnosis and the difference of opinion seems to hinge, in part at least, on the alleged confusion with scarlet fever of a disease otherwise known in Japan as wind flowers" Those who believe in the actual immunity of the Japanese to scarlet fever seem to be undecided whether to attribute the phenomenon to racial climatic or dietetic factors Ashmead (loc cit) is altogether skeptical of the existence of the disease among the Japanese and says that in 40,000 examinations in hospital and private practice in Tokio he never saw a single case of scarlet fever or puerperal infection He declares that Baelz is the only foreign practitioner who has reported scarlet fever among the Japanese We are not aware of any case of Japanese scarlet fever or alleged scarlet fever that has been examined by partisans of both theories Such joint examination might go far toward settling the question

The universal negative is notoriously hard to defend In medicine particularly, as some one has said it is never safe to use the word "never" While we decline therefore, to be responsible for the statement that no Japanese have scarlet fever" our readers will oblige us by mentally inserting a saving 'practically" or probably in the editorial statement that no race or country is immune"

DIORADIN

To the Editor —I have been reading an account of sixteen cases of tuberculosis in the *Medical Review of Reviews* in which Dr Stephen W Wells of Liberty N Y has used Dioradin with success I have a case in which I wish to use Dioradin but would like some more enlightenment on the subject first

1 What is Dioradin? 2 What has been the experience of others with it? 3 Would you advise its use? P H I

Answer —1 Dioradin is a proprietary preparation said to be a mixture of menthol iodoform and a preparation containing radium chlorid to the extent of 10 drops of a 1 100 000 solution in 100 c c of the preparation

2 Most reports of the clinical experience with Dioradin appear to come from those who are biased in favor of the preparation None from reliable, disinterested clinicians are available so far as we can learn Most of the literature sent out by the proprietors comes from a Dr Bernheim of Paris The preparation has been vaunted in the newspapers in England, Germany and in this country

3 We would not advise its use because (*a*) it is a nostrum the composition of which has not been satisfactorily disclosed, (*b*) there is no reason for supposing that any of the ingredients except possibly iodoform is likely to be of service in the treatment of tuberculosis The use of menthol by hypodermic or intravenous injection has not proved of value in the treatment of tuberculosis Where *iodoform has* been used the results are still uncertain but if it is to be used in tuberculosis it would be much better to give it unmixed with other remedies There is no ground for supposing that radium especially in the extremely minute amount present in this nostrum, is useless in tuberculosis

LITERATURE ON WEIL S DISEASE

To the Editor —Please tell me where I can find some late literature on Weil s disease F A Chapman M D Chicago

Answer —The following may be referred to

Leslie I F Epidemic of Catarrhal Jaundice *Boston Med and Surg Jour* Oct 28 1909 abstr in The Journal Nov [illegible] 1909 p 1600

Barker L F and Sladen F J Small Epidemic of Jaundice with Symptoms of Gastro Intestinal Catarrh *Bull Johns Hopkins Hosp* October 1909 abstr in The Journal Oct 23 1909 p 1431

Mancini F Epidemic of Jaundice *Policlinico* December 1909 abstr in The Journal Feb 12 1910 p 578

Hecker A and Otto R W Weil s Disease *Deutsch med Wchnschr* May 4 1911 abstr in The Journal June 10 1911 p 1767

Hallowes R R Epidemic of Infectious Jaundice *Brit Med Jour* June 24 1911 abstr in The Journal July 29 1911 p 428

Collins A A Epidemic Jaundice *Jour Minnesota Med Assn* July 1 1911

Pinniger A J H Eight Cases of Catarrhal Jaundice in Epidemic Form *Brit Med Jour* Nov 18 1911

Williams D O Epidemic Jaundice *Brit Med Jour* Dec [illegible] 1911

A POOR STATE EXAMINATION QUESTION

To the Editor —On a recent state board examination the following question was asked

(a) Give the origin and (b) form of the pneumobacillus of Frankel and (c) state in what diseases the bacillus has been found

Will you kindly answer this question in the columns of The Journal Incidentally is it a fair question? I N I

Answer.—There is no pneumobacillus of Frankel (Fraenkel) There is a pneumococcus of Fraenkel and a pneumobacillus of Friedländer It is probable that one of these is the organism referred to in the question asked

Questions asked in state board examinations should be unequivocal and they should cover [illegible] which can be obtained from ordinary text books and [illegible] ordinary courses of in[illegible] one to be asked in such

Medical Economics

This Department Embodies the Subjects of Post Graduate Work, Contract Practice Legislation, Medical Defense and Other Medicolegal and Economic Questions of Interest to Physicians

THE ORGANIZATION OF THE DEPARTMENT OF PREVENTIVE MEDICINE IN THE UNIVERSITY OF MISSOURI

W J Calvert, M.D
COLUMBIA, MO

The recent[1] establishment of a department of preventive medicine in the University of Missouri at once suggests the two questions 1 What are the purposes of a department of preventive medicine? 2 What are the plans for accomplishing these purposes?

Preventive medicine is that branch of knowledge which collects, arranges, and states in non technical language the medical knowledge pertaining to the two great classes of diseases (1) those due to germs and (2) those due to other causes such as alcohol morphin, etc —and to the means by which these diseases may be eradicated Consequently the course in preventive medicine presents in simple language a brief history of medicine placing special emphasis on Pasteur's discovery that infectious diseases are caused by specific germs gives the life history of the pathogenic bacteria and discusses the carriers of bacteria modes of infection methods of prevention and means for stamping out infectious diseases It also briefly states the theories of immunity and the methods by which infectious diseases may be cured The important non infectious diseases are briefly described and the means of their prevention explained

AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES 1912—NO. 5

THE MILKMAN

Before the purposes of this chair can be realized, there are several seemingly disconnected medical, social and economic situations to be taken into account as having to a certain extent determined these purposes There exist

1 A considerable amount of useful knowledge pertaining to the prevention of diseases

2 A wide spread lack of information on the part of the masses pertaining to this knowledge

3 A rather extensive field for research relating to the prevention of many of our more common diseases

4 A well developed system of elementary schools

It is important that the specific knowledge now at hand regarding the prevention of diseases should be placed as quickly as possible at the disposal of the masses Naturally the imparting of this knowledge to a large number of people uninformed in the most elementary principles of anatomy, physiology, etc, is an enormous undertaking, and its importance is sufficiently great to warrant the use of any or all existing organizations as means for reaching the people If it were not for the cooperation of these organizations, the difficulties of the chair of preventive medicine would be well nigh impossible

The educational organizations, from the primary grades to the college, are those most available to the present needs of preventive medicine Properly to utilize the opportunities afforded in the schools, it is necessary to have teachers prepared to give instruction in preventive medicine To this end the School of Education at the University of Missouri has made a course in preventive medicine a requisite for graduation These teachers go throughout the state to normal schools and high schools which in turn, supply teachers to the grammar and elementary schools The press is a second organization that efficiently serves the purposes of preventive medicine Should the press of the United States champion the cause of preventive medicine, it would render inestimable benefit, monetary and physical, to the masses To this end the School of Journalism at the University of Missouri also has made a course in preventive medicine a requisite for graduation In addition to the requirements of these two departments, students of any department of the university may elect the course

From the aid that the department of preventive medicine has sought to enlist from the teachers, the journalists and all the students in the university it is evident that it is striving to equip as many teachers as possible in order that they may introduce elementary courses of preventive medicine in the primary and secondary schools of the state to give the journalists accurate, usable information about preventive medicine in order that they may make the most of the opportunities they have in the press, to instruct as many of the men and women of the university as possible in order that they may derive individual benefit and, at the same time disseminate the knowledge of preventive medicine into all walks of life

But the necessarily limited course that students may have had in the schools and the meager knowledge that the people may have accumulated apart from the schools, while important as a stimulus, must be supplemented in times of emer gency When the people are aroused sufficiently to want to know how they may prevent diseases, they should have some authoritative source for additional information This supplementary knowledge the chair of preventive medicine purposes to supply through its bureau of information which is now in the process of formation This bureau is not for the treatment of diseases but only for instruction in matters pertaining to prevention It renders its services without fee Its functions are

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[1] September 1911

1 To answer, in so far as is possible, all questions pertaining to prevention asked by individuals or communities of the state of Missouri

2 To assist in the diagnostication of diseases by performing such laboratory examinations as any physician in the state may desire

3 To devote special attention to carriers of diseases, to assist in the detection of such carriers and to indicate in so far as is possible the disposition of carriers

4 To send on request such literature as the bureau may issue

5 To furnish to the press of the state brief articles on important aspects of preventive medicine

The fulfilment of such duties by this bureau will of necessity develop a laboratory of clinical pathology which will, in turn, encourage and foster research work

It is evident, therefore, that the University of Missouri is teaching preventive medicine to non medical students in order that it may utilize two potent factors within the state—the public schools and the press It also stands ready to answer questions and to give such information as may be necessary to establish and to maintain a normal, healthy people The attendance, during the session of 1911 1912, on the course in preventive medicine by students from all departments of the university, their interest, and their comprehension of the subject matter justifies the belief that non medical students can, without undue effort, grasp the principles of prevention and that they are anxious for the practical benefits that may be derived from this branch of study

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS Coliseum Annex Chicago September 24 26 Sec Dr James A Egan Springfield.

IOWA Capitol Bldg Des Moines September 11 13 Sec Dr Guilford H Sumner State House

MASSACHUSETTS State House Boston September 10 12 Sec. Dr Edwin B Harvey Room 159 State House

NEW YORK September 17 20 Chief of Examinations Division Mr Harlan H Horner Department of Education Albany

Kentucky June Report

Dr J N McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, June 3 5, 1912 The number of subjects examined in was 15, percentage required to pass, 70, and not less than 60 in any one branch The total number of candidates examined was 72, of whom 65 passed, including one osteopath, and 7 failed The following colleges were represented

PASSED

College	Year Grad	Per Cent
Hering Medical College	(1912)	87
Louisville National Medical College	(1911)	76
Univ of Louisville (1910) 70 (1911) 70 76 82	(1912)	74 75 77 78 79 79 81 82 82 82 83 84 84 84 85 85 86 86 86 86 86 87 87 87 87 87 87 87 87 87 88 88 88 88 88 88 89 89 89 89 89 90 90 90 90 91 91 91 91
Eclectic Medical College Cincinnati (1910) 80	(1912)	86
Ohio-Miami Medical College	(1912)	81 90
University of Pennsylvania	(1912)	86
Vanderbilt University	(1912)	83 84
University of Tennessee	(1912)	82
Meharry Medical College	(1909)	75

FAILED

College	Year Grad	Per Cent
University of Louisville (1911) 68 68	(1912)	74 74
Louisville National Medical College	(1911)	69
Kentucky School of Medicine	(1908)	74
Tennessee Medical College	(1909)	61

Minnesota June Report

Dr Thomas S McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, June 4 7, 1912 The number of subjects examined in was 11, total number of questions asked 110 percentage required to pass 75 The total number of candidates examined was 35, of whom 34 passed and 1 failed Eight candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent.
University of Southern California	(1910)	82
Northwestern University Medical School	(1912)	87
Rush Medical College	(1912)	84
University of Minnesota College of Medicine and Surgery	(1912)	80 82 84 84 85 85 86 86 86 86 87 87 87 87 88 88 88 88 88 89 89 89 89 89 89 90 90 91
Hamline University	(1911)	81
Woman's Medical College of Pennsylvania	(1909)	80
McGill University Montreal Quebec	(1907)	86

FAILED

College	Year Grad	Per Cent.
St. Louis College of Physicians and Surgeons	(1909)	48

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
Northwestern University Medical School (1910)	(1911 2)	Illinois
(1911)		Wisconsin
Hahnemann Med College and Hospital Chicago	(1911)	Illinois
Keokuk Medical College Coll of Phys. and Surg	(1908)	Iowa
University of Pennsylvania	(1908)	Michigan
Medical College of the State of South Carolina	(1905)	S Carolina

New Jersey June Report

Dr H. G Norton, secretary of the New Jersey State Board of Medical Examiners reports the written examination held at Trenton, June 18 19, 1912 The number of subjects examined in was 9, total number of questions asked, 90 percentage required to pass, 75 The total number of candidates examined was 44 of whom 33 passed and 11 failed Nineteen candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent
Georgetown University Washington D C	(1910)	77
College of Physicians and Surgeons Baltimore	(1912)	84
University of Maryland	(1911)	79
Long Island College Hospital (1908) 76	(1911) 77 78 80 (1912)	90
Cornell University Medical College (1908) 82	(1911)	77 87
Columbia University College of Physicians and Surgeons (1907) 82	(1912)	83
University and Bellevue Hospital Medical College (1911) 84	(1912)	78
New York Homeopathic Med College and Hospital	(1912)	86
Medico Chirurgical College of Philadelphia (1911) 77	(1912)	82 82 82 85
Jefferson Medical College (1911) 81	(1912)	80 80 80 84 85
University of Pennsylvania (1911) 78 82	(1912)	78 80
Hahnemann Medical College and Hospital Philadelphia (1910) 77	(1912)	81

FAILED

College	Year Grad	Per Cent
Kentucky School of Medicine	(1906)	64
College of Physicians and Surgeons Baltimore	(1911)	66
University of Maryland (1906) 68	(1910)	*
New York University Medical College (1885) 69	(1891)	62
University of Naples Italy (1893) 57 (1895) 66 (1901) 63 (1905) 68	(1908)	69

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
College of Physicians and Surgeons Chicago	(1903)	Illinois
Chicago Homeopathic Medical College	(1886)	Minnesota
Kentucky School of Medicine	(18[illegible])	Kentucky
Medical School of Maine	(1910)	Maine
Baltimore Medical College	(1908)	New Hamp
Eclectic Medical College of the City of New York	(1911)	Vermont
Columbia University College of Phys and Surg	(1907)	Vermont
University of Pennsylvania (1897) (1898) (1901)	(1908)	Pennsylvania
(1910 2)		Maine
(1910)		Vermont
Hahnemann Med Coll and Hosp Philadelphia	(1910)	Maine
Medico Chirurgical College of Philadelphia	(1907)	Penna
Jefferson Medical College	(1909)	Penna
University of Vermont (19[illegible])	(1910)	Vermont

* Expelled for cheating

The following questions were asked

ANATOMY

1 Describe the subscapular artery name its branches and anastomoses 2 What system of nutrient arteries for the cerebrum are derived from the circle of Willis? What is the danger of [illegible] obstruction in these vessels? Where do similar terminal arteries exist? 3 What vessels are engaged in the anastomosis around the elbow joint? 4 Describe the superior longitudinal sinus What veins does this sinus receive? 5 Name the muscles of inspiration and expiration 6 In what way is a free communication established between the portal and general venous systems? 7 Locate [illegible]

describe the coronary sinus of the great cardiac vein What veins does it receive? How is its opening guarded? 8 Give the relations of the abdominal aorta 9 Name vessels and nerves of the stomach 10 Describe the facial vein mention its tributaries

PHYSIOLOGY

1 Name all the hepatic functions. 2 Give six factors that affect the arterial circulation 3 Give six factors that affect perspiration 4 Give six factors that affect urine secretion 5 What physiologic disturbances would follow ligation of a renal artery? 6 Define food 7 Give the food values of meat bread, milk, potatoes asparagus and corn 8 What is accomplished by the portal circulation? 9 Give physiologic explanation of an exaggerated knee jerk 10 Give the chemical composition *of the body*

CHEMISTRY

1 What are alkaloids? Give the important alkaloids of opium, belladonna and nux vomica 2 Name the constituents most frequently found in drinking water which render it unfit for use Give tests for the detection of each 3 Name the important chemical constituents of saliva gastric juice bile and pancreatic juice. 4 Write the chemical formula of nitric hydrochloric sulphuric and acetic acids with name and chemical formula of a sodium salt of each 5 Describe the bromin as to its physical and chemical properties (b) When and how does bromin occur in nature? 6 Define capillary attraction electrolysis dialysis isomerism 7 What is lithium? (b) On what chemical hypothesis are lithium salts given in uric acid diathesis? 8 Name the principal carbohydrates and their formulas 9 What is pyroxylin and how produced? 10 Which is the most important of the celluloses? (b) Of what is wheat flour composed?

HISTOLOGY

1 Describe neuroglia tissue and where found 2 Describe the dura mater 3 Describe the cornea 4 Describe the organ of smell 5 Describe the fallopian tubes

PATHOLOGY

1 Explain the derivation of sugar from fats and proteids in diabetes and its significance 2 Give the pathology of diabetes 3 Explain the presence of uric acid in the blood and urine. 4 Describe the blood pictures of chlorosis and pernicious anemia

BACTERIOLOGY

1 Name the bacteria normally present in the intestines 2 What is the action of the streptococci on different sugars? 3 Where do you find the *Streptococcus salivarius* and what is its function? 4 What do you mean by Koch s postulates? Name them

PRACTICE OF MEDICINE

1 Give three characteristics of anemic murmurs 2 Give the causes and significance of five different renal casts 3 What how much and how often would you feed a 3 months-old bottle fed infant? 4 What is hemiplegia paraplegia and paralysis agitans? Describe the walk in each 5 Describe icterus *and name* three chronic diseases of the liver in which it is absent. 6 Where is bronchial breathing normally heard? What does it indicate when heard elsewhere? 7 Describe the eruption in its different stages of (a) *measles* (b) chicken pox and (c) small pox 8 Give names and causes of murmurs heard at the apex of the heart also of the ones heard at the base 9 What are the physical signs of a cavity of the lung (1) with elastic walls and (2) communicating with a bronchial tube? 10 What is the difference in length of time between inspiration and expiration and the significance of variations therefrom?

SURGERY

1 Describe Pott s fracture Give treatment 2 Diagnosis and treatment of strangulated inguinal hernia 3 Etiology diagnosis and treatment of mastoiditis. 4 Etiology diagnosis and treatment of empyema of the antrum of Highmore 5 Mention the non malignant tumors of the breast Describe one variety 6 Early diagnosis and treatment of tuberculosis of the hip joint. 7 Give indications for ligating the internal carotid artery 8 Diagnosis and treatment of rupture of the urinary bladder 9 Etiology diagnosis and treatment of phlebitis 10 Etiology symptoms and treatment of tetanus

MATERIA MEDICA AND THERAPEUTICS

1 Name (a) the source (b) the preparation doses and (c) the effects of opium antidote and other measures used for resuscitation 2 What is antidote for poisoning by (a) bichlorid of mercury (b) arsenic (c) atropin (d) phosphorus? What disease does phosphorus poison simulate? 3 What are the indications and contraindications as to the use of digitalis as a cardiac stimulant? Give dose by mouth *and hypodermatically* 4 Give therapeutic indications for the use of chloral hydrate dose in each case 5 By what rule would you determine the dose of any drug for a child? 6 Write a prescription for acute articular rheumatism in an adult *enterocolitis* in a child aged 4 years explain action of the various drugs 7 What are the indications for producing diaphoresis? Name three diaphoretics 8 Give therapeutic uses of chloroform dose How would you compare it with other anesthetics? 9 What would be your treatment for a case of uremic poisoning? 10 Name preparations of coca uses dosage What would be your treatment for the cocain habit?

HOMEOPATHIC MATERIA MEDICA AND THERAPEUTICS

Give treatment for 1 Surgical *neurasthenia* 2 Acute nephritis. Iritis 4 Mastitis 5 Gall stone colic Name five remedies prominently affecting 6 The skin 7 The spinal cord 8 The stomach and intestinal tract 9 The nervous system 10 The mental sphere

HYGIENE

1 At what temperature would you keep a sick room and how ventilate it for a patient with pneumonia? 2 Give details of fumigating a room recently occupied by a patient with scarlet fever 3 In hospitals and prisons what would be the minimum of cubic feet of air space allowed for each occupant? 4 What is the best general method of purifying drinking water? 5 What per cent. of the oxygen inhaled is consumed during an ordinary inspiration?

JURISPRUDENCE

1 State the difference between criminal and civil malpractice 2 Give in detail the duties of the practitioner who is called to inspect a dead body 3 *Name some of the* violent causes of death 4 Tell how strychnin causes death and give post mortem appearances especially as regards rigor mortis 5 Differentiate between hysteria and melancholia

OBSTETRICS

1 Describe your examination of a woman presenting herself at an early period of her pregnancy Give instructions as to dress diet, sexual intercourse and subsequent examinations 2 Give *conditions* occurring during labor which call for use of forceps and describe their application 3 Describe briefly the stages of labor and name the conditions which may delay labor in each stage 4 Give three conditions which call for version and describe in detail *how it should be performed* 5 Give symptoms suggestive of eclampsia Give preventive treatment and treatment when convulsions are present.

GYNECOLOGY

1 Give causes symptoms and treatment of pelvic peritonitis 2 Give the causes of tear of the cervix and of the perineum their immediate danger the conditions they may produce if not repaired and the best time for the repair of each 3 Differentiate between ovaritis, salpingitis and appendicitis 4 Give causes symptoms and pathology of chronic endometritis and differentiate it from early carcinoma. 5 Give causes symptoms and treatment of retrodisplacement of the uterus

Book Notices

A Statistical Survey of Infant Mortality's Urgent Call for Action By Edward Bunnell Phelps M A, F S S Editor The American Underwriter, New York, 141 Broadway New York. Cloth Pp 27

This little monograph is a reprint of an address given at the first annual meeting in 1910 of the Association for the Study and Prevention of Infant Mortality by Mr Edward B Phelps, editor of the *American Underwriter* The peculiar significance of this excellent address is that it was written by a non medical man whose original interest in the subject comes through his connection with the life insurance business The object is to place on record and bring before the public in a simple form a convincing demonstration of the present appalling infant mortality, causing an utterly needless waste of infant life The first important fact which Mr Phelps emphasizes is the ignorance as to the infant mortality of the United States as a whole As all students of this subject know, until all of our states adopt adequate vital statistics *registration laws, it is impossible to arrive at anything* except an approximation of the annual infant mortality rate When it is remembered that after years of effort, the death registration area of the United States still lacks Illinois, Iowa and most of the southern states, while the birth registration area as yet only includes New England, Pennsylvania and Michigan, the difficulties of securing even the basic facts for such an investigation are apparent Mr Phelps points out that between 25 and 30 per cent of all deaths under one year are due to diseases of the digestive system and that, as Dr E L Holt has pointed out, the fundamental causes of infant mortality are mainly the result of poverty, ignorance and neglect A number of tables grouped in the appendix contain a large amount of statistical matter

Exercise and Health By Dr Woods Hutchinson Outing Handbooks Cloth Price $0 70 Pp 156 New York Outing Publishing Company 1911

This collection of six articles published originally in *Outing*, and now forming one of the *Outing* handbooks, was written for laymen and is, therefore, popularized physiology This, however, does not prevent it from being interesting and graphic Dr Hutchinson's ability to put scientific facts in original and striking form is well known An excellent illustration of this is found in the first paragraph of the first article "Exercise in primitive times was the price of life It was only after we had learned to live by our wits and exercise became a luxury, that it began to run into fads If primitive man neglected his *al fresco* Delsartean exercises and let his muscles soften, he simply provided a tender titbit for some of his confrères carnivore or cannibal It was a case of eat or be eaten and his motto was, 'Do it first' The gorgeous possibilities of power through repose had not yet dawned on him"

This same happy faculty of illuminating scientific facts with humor and apt quotation is found throughout the little volume This not only makes the reading of the book a pleasure, but also causes many of the bits of advice to stick in the mind through the aptness of the illustration or the picturesqueness of the phrase employed The chapters of the book are entitled "Errors in Exercise," "Athletics and the Heart," "Muscle Maketh Man," "Occupation and Exercise," "The Real Danger of Athletics" and 'Exercise That Rests" The book is an excellent one to prescribe for business and professional men In fact, it would be a good thing for the doctor to read before passing it on to his patients

Elektrophysiologie menschlicher Muskeln Von Dr Med H Piper a o Professor der Physiologie Kgl Friedrich Wilhelms Universität zu Berlin Paper Price 8 marks Pp 163 with 65 illustrations Berlin Julius Springer 1912

In this highly technical monograph the author reports his laborious experiments on the electrophysiology of human muscles New methods and apparatus had to be invented for this work, whereby the author believes that he has proved beyond doubt the proposition that a voluntary contraction of muscles is caused by the dispatch of fifty impulses per second to the contracting muscle and that each of those impulses causes a distinct contraction wave This he has been able to prove by causing irritation of the motor nerve fifty times per second and observing as a consequence a muscular effect not distinguishable from natural contraction In no other way has he succeeded in reproducing the mammalian muscle contraction, though he has experimented with high frequency currents, cathodal closure tetanus, stimulation with different electrical time stimuli and strychnin tetanus We trust that some practical application in medicine may come from these interesting experiments

Annual Report of the Bureau of Health for the Philippine Islands By Carroll Fox Acting Director of Health Paper Manila 1911

The tenth annual report of the director of the Bureau of Science of the Philippines gives an account of the work of the bureau during the year ending August 1911 The work mainly concerns the biologic sciences and chemistry, and only indirectly refers to medicine Investigations with regard to yaws, particularly with reference to the action of salvarsan, are noted The opinion is expressed that the preparation is as important a specific for yaws as quinin is for malaria Work on the parasitic amebas and on various worms as well as investigations on leprosy, cholera, dysentery and rabies, is reported

Le Laboratoire du Practicien Analyse Clinique—Méthodes et Procédés Guide de Diagnostic et d Hygiène Prophylatique des maladies Communes Exotiques et Tropicales Par Louis Niclet Dessinateur Photographe du Laboratoire Central de l Hôpital Saint Louis *First part* Paper *Price 3 francs* *Pp 32 with 120 illustrations* Paris A Poinat 121 Boulevard Saint Michel (Ve) 1912

This little pamphlet is the first of three sections dealing with the laboratory work of the general practitioner In this portion, the general organization of a laboratory, the cost of equipment and maintenance and many methods of examination (especially those dealing with the parasites and diseases of the skin and its appendages) are discussed The illustrations are very good The work should prove valuable both to the general practitioner who may wish to install his own working laboratory, and to the laboratory worker, who may have occasion to give advice concerning the installation of hospital or other laboratories

Society Proceedings

COMING MEETINGS

Amer Assn of Obstetricians and Gynecologists Toledo Sept 17 19
American Electro-Therapeutic Association Richmond Va., Sept 3 5
American Public Health Association Washington D C Sept. 18 20
American Roentgen Ray Society Niagara Falls Sept 11 14
Colorado State Medical Society Pueblo Sept 24 26
Conf State Bds of Health of N Am Washington D C Sept 20 21
Indiana State Medical Association Indianapolis Sept 26-27
Internat. Congress on Hygiene etc Washington D C Sept 23 28
Medical Society of the Missouri Valley Council Bluffs Ia Sept 5-6
Nevada State Medical Association Reno Sept 10 12
New Mexico Medical Society Roswell Sept 12 14
Pennsylvania State Medical Society Scranton Sept 23 26
Wyoming State Medical Society Sheridan Sept 17

Medicolegal

Chronic Appendicitis Not Necessarily An Illness

(Miller vs Maryland Casualty Company (U S) 193 Fed R 343)

The United States Circuit Court of Appeals, Third Circuit, holds that the question should have been left to the jury whether the statement of an applicant for accident and health insurance did misrepresent or was false when it said that he had never received indemnity for any accident or illness, except for a sprained ankle, whereas he had had chronic appendicitis, had been operated on therefor and had after the operation remained in bed for some time for which he was paid indemnity benefits of $225 The court says that chronic is distinguished from acute appendicitis In the former case the removal of the appendix, while it may be beneficial or desirable, is not immediately imperative The condition of acute appendicitis is fittingly described as an illness but chronic appendicitis is not necessarily an illness in common speech and therefore, when a man is operated on therefor it does not follow that, when he remains in bed after such an operation, his condition is necessarily and only described as that of illness A broken limb, an amputation the removal of a growth an optical or aural operation may be followed by the patient remaining in bed, but such cessation from physical activity does not necessarily imply illness in the common acceptation of the word In such common acceptation illness is ordinarily associated with disease with sickness with ill health From this and the terms of the policy it would seem that whether the statement was not literally true was itself a debatable question And as bearing on the question of the materiality of one of the facts alleged to have been concealed, namely, the fact that the applicant's appendix had been removed, it was to be considered that such removal, instead of increasing the company's risk, actually relieved it from an obligation it assumed by the policy, namely, indemnity against operation for appendicitis So regard was to be given to the general belief that the removal of the appendix is beneficial and the fact that this man's had been so removed six years before and with no consequent ill effects

School Liable for Malpractice—Admissibility of Evidence—Osteopathy

(Atkinson vs American School of Osteopathy et al (Mo), 144 S W R 816)

The Supreme Court of Missouri Division No 1, in reversing a judgment for $10 000 rendered in favor of the plaintiff and remanding the case for a new trial decided several points of general interest The plaintiff charged that the defendant, Charles E Still, connected with the defendant school in treating her for asthma, or a slight affection of the nasal passages that affected her breathing while she was a student at the school and entitled to free treatment by it negligently broke her sternum and forced the same into her lungs forcing out the cartilages of her ribs on the right side of her body into an unnatural position etc The court holds that there being no denial of the assertion that Still treated the plaintiff as the agent and employee of the school that corporation would be jointly liable with him for damages resulting from his negligence

The defendants asserted that the history of the plaintiff's alleged injury was incredible and impossible for 'if she had suffered bone fractures instant and severe pain and prostration would *have followed as certainly as fire will burn, or* water run down hill" The inference seemed to be the court says that the plaintiff's assertion that after suffering the alleged injuries and a few days of confinement and pain therefrom she so far recovered as to pursue her studies and engage in sports for more than six months before the serious phases of the injury developed was contrary to some well known and universally recognized natural law or to universal human experience The court fails however to [illegible] applica tion of that argument to the evider [illegible] fans us have not had the fortune to [illegible] cannot therefore speak from pers learned by observation as well as common information that apparently similar lesions of the human tissues produce widely different results, even in cases exposed to the most casual visual observation; and, in cases of internal injuries, we are prepared to receive the evidence of those skilled in observing such things as to their nature and probable results, as well as the testimony of those who have seen or experienced the effects which have actually followed them

The plaintiff was permitted, over objection, to testify that the dean of the faculty, who treated her after her alleged injury, told her that her second, third and fourth ribs were broken, caused from Dr Still's treatments That was error The question is one of importance, because, if such testimony is admissible, it opens one more door by which verdicts may be recovered on unsworn gossip, instead of sworn testimony, and makes it dangerous to furnish the first surgical aid to injured employees, which, happily, most employers are glad to render Any fact material to the interest of either party to an action, which rests in the knowledge of another, is to be proved by his testimony, and not by his mere assertion, unless the party has authorized him to make the assertion

The purpose of Section 8537 of the Revised Statutes of Missouri, which provides that osteopathy is "not to be the practice of medicine and surgery within the meaning of Article 1 of this chapter, and not subject to the provisions of said article," is simply to segregate this particular system from those for the regulation of which Article 1 was enacted Each of these systems, methods, or sciences stands on its own merits

Telephone Company Failing to Furnish Connection With Telephone of Physician

(Dewcese vs Southwestern Telegraph and Telephone Company (Tex) 144 S W R 732)

The Court of Civil Appeals of Texas affirms a judgment dismissing an action for damages for the death of a woman alleged to have been caused by a negligent failure to make connection with the telephone of a physician whereby he might be summoned to the bedside of the woman, who was suffering from a hemorrhage from which she finally died The court says that if there was any right of action it was by virtue of the Texas statute which gives a right of action for actual damages on account of injuries causing the death of any person when such death is caused by the wrongful act, negligence, unskilfulness, or default of another But the complaint showed that the woman's death was the result of natural causes, and did not result from an injury to her person by the wrongful act of the telephone company The failure of the company to provide a way of communication with the physician was a breach of contract, which may have indirectly prevented the woman receiving relief which might have saved her life, but such a contingency was too remote on which to base an action for damages under the statute Again, while a telephone corporation is liable in an action for a death caused by its own wrongful act it is not liable for the death of a person caused by the wrongful act of its servants, and this woman's death was charged to have been caused by the wrongful act of the company's agents, which failed to state a cause for recovery of damages

Supervisor Authorizing Treatment

(Belknap vs Township of Benton (Mich) 135 N W R 101)

The Supreme Court of Michigan reverses a judgment rendered in favor of the township and grants a new trial in this action for services rendered by the plaintiff as a physician and surgeon to a boy who had his right arm shattered by a gunshot It was claimed that the supervisor of the township had authorized the treatment at the public expense, although the boy's father had not requested public aid The court says that under the Michigan statute the supervisor is the agent of the township for the transaction of all legal business It was the duty of the supervisor when this question arose and investigation had been made to pass on the question whether or not the care of this boy should be made a township charge He solely was charged with the duty of determining whether or not the boy, or his father, was such a poor person as to bring the case within the law providing for the support of the poor by the township The determination by the supervisor that this person was one entitled to relief was an official act which was binding on the township in favor of those who in good faith furnished medical attendance or supplies in reliance on the order and direction of such supervisor This is not only common justice, but it seems to find support in the authorities It appeared by the record that the distinction between township and county poor had been restored in the county of Berrien, in which the township of Benton is situated, in 1880, and that since that time each township cared for and supported its own poor

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

California State Journal of Medicine, San Francisco

August, X No 8 pp 313 356

1 Hydrophobia and Its Present Status in California W A Sawyer Berkeley
2 Clinical Symptoms of Alcoholism and Its Treatment. R. E Bering San Francisco
3 *Experimental Surgery of Hypophysis Cerebri H E Castle and H A L. Ryfkogel San Francisco
4 *Clinical Value of Arneth Method of Blood Examination L. H Briggs, San Francisco
5 Case of Acromegaly With Thrombosis and Embolism W B Coffey and W T Cummins San Francisco
6 Present and Future of Eye and Ear Section of Our State Medical Society W H Dudley Los Angeles.
7 Ocular Disturbances Caused by Cinematograph M E Hart, San Francisco
8 Appendicitis—Then and Now J C. King Banning
9 California State Tuberculosis Commission G H Kress Los Angeles

3 **Surgery of Hypophysis Cerebri** —The authors believe the pituitary body is a ductless gland which has an internal secretion closely correlated to that of some of the other ductless glands, especially to that of the thyroid, ovaries and testes Their experiments have proved to them that the pituitary gland is essential to life, but they have not proved that part of the gland is capable of the maintenance of life indefinitely, without symptoms They believe, as do the majority of experimenters, that the secretion of this gland has a controlling influence over the nervous system, in what manner this influence is initiated they do not theorize This conclusion is drawn from the fact that hypophysectomized animals usually suffer from various nervous disorders The anterior lobe, when *in situ*, has the greater control over the other ductless glands, for when it is extirpated there are often changes in the ovaries, testes and thyroid There are also often manifested a general adiposity and irregular changes in the urine This cachexia hypophyseopriva is not produced by the removal of the posterior lobe With the vast amount of careful investigation that is now in progress they believe two very important questions relative to the pituitary gland will soon have been answered, viz (1) What is its function, and, (2) what is the value of its transplantation

4 **Arneth Method of Blood Examination** —In his investigations Briggs found that the nuclear formula of the neutrophils, the so called neutrophilic blood picture," in the normal, agrees closely and constantly with that found by Arneth and many other workers In tuberculous typhoid, pyogenic and malarial infections, a deviation from this normal is regularly found, the so called 'shift to the left," consisting of an increase in the cells with fewer nuclear units and a corresponding decrease in the cells with many The degree of this shift appears to be roughly proportionate to the severity of the infection, except in typhoid, in which it is uniformly present to a marked extent, irrespective of the individual case In tuberculosis such changes in the neutrophils seem to offer a distinct aid in prognosis, although the reliability of this needs further confirmation In typhoid, pyogenic and malarial infections such changes do not at present appear to be of much practical value However, in the light of these constant and regular changes in the neutrophils in disease, Briggs says a blood examination should never be considered

complete without an estimation of these cells according to the method of Arneth

Colorado Medicine, Denver

July, IX, No 7 pp 193 220

10 Diagnosis of Mediastinal Growths J N Hall Denver
11 Sarcoma of Breast C A. Powers Denver
12 Diseases of Frontal Sinus Palliative and Surgical Treatment T J Gallaher Denver
13 Case of Friedreich s Ataxia B Oettinger Denver
14 Intraperitoneal Injuries L. H McKinnie Colorado Springs
15 Typhoid With Acute Calculous Cholecystitis. R W Arndt Denver

Journal of Medical Association of Georgia, Augusta

August, II No 4, pp 99 136

16 Importance of Correct Diagnosis of Skin Lesions and Exhibition of Case of Dermatitis Herpetiformis. C Swanson Atlanta
17 *Treatment of Pulmonary Tuberculosis by Compression of Lung S T Harris, Highlands N C.
18 Diagnosis and Home Treatment of Tuberculosis W B Hardman Commerce
19 *Present Status of Specifics in Treatment of Tuberculosis E C Thrash Atlanta
20 Tuberculin Not Even a Placebo J M Anderson Pinedale

17 **Compression of Lung in Pulmonary Tuberculosis**—Harris has had thirty four cases in which this operation has been performed, and he reoperated two patients after the gas had been absorbed, in one of them five months after the last filling. Nine of these cases were monolateral in which a complete pneumothorax or compression was produced The process was arrested in each instance giving 100 per cent of successes There were adhesions in two of them There was an effusion in one during course of treatment, and in another five months after discontinuing the treatment, following an attack of influenza and pleurisy The gas had entirely disappeared and the effusion could hardly have had any connection with the treatment There were five monolateral cases in which there was an incomplete pneumothorax All of them had heavy adhesions, which prevented its formation, but even with this the results were good in three of them, negative in one, and one died of heart failure Ten of these cases, where complete pneumothorax or compression was produced, were bilateral In nine of these the process was arrested in the lung operated on One is too recent to classify, but the indications are good In four, the process has remained arrested in both lungs, and in four the process on the unoperated side remained more or less the same, with periods of either bronchitis, perituberculous pneumonia or pleurisy It would be hard to say if any influence was exerted on these unoperated sides There were three effusions, one small serous and one massive In the third case there was an empyema, and a rapid process set up in the other lung, resulting in death This patient had made remarkable gain and had been home against Harris' advice for some months doing light housekeeping, with every evidence of the process being arrested There was incomplete or no pneumothorax in ten of the bilateral cases There were adhesions in all of them In two of them no pleural cavity whatever was produced and consequently no collapsing of the lung Five of them were remarkably benefited even with the small collapsing that was produced Two died of intestinal tuberculosis, which the attempts at compression seemed to aggravate In all cases in which a compression was produced uniformly good results were obtained in the lung operated on In these cases the combined mono and bilateral percentage, where the process was arrested, is 08 42 per cent

19 Abstracted in THE JOURNAL, June 8, p 1781

Interstate Medical Journal, St. Louis

July XIX, No 7 pp 577 635

21 Injection of Oxygen and Other Disinfectants Into Intestines Through Duodenal Tube A Schmidt Halle Germany
22 Fallacies in Treatment of Gastro-Intestinal Diseases I A Abt Chicago
23 Infant Feeding as Taught by German School J M Brady St Louis
24 Technic of Wassermann Reaction for Syphilis R B H Gradwohl St Louis
25 Clinical Diagnosis of Renal Insufficiency D Fulton Los Angeles
26 Peculiarities of Medical Practice in Porto Rico C F Ruth Des Moines Iowa
27 Better Utilization of City Health Resources in Summer A A Howard Boston.

Military Surgeon, Washington, D C

August XXXI, No 2 pp 119 237

28 Medical Department of United States Army in Civil War L. C Duncan U S Army
29 Modern Methods of Quarantine Against Asiatic Cholera A J McLaughlin U S P H and M H S
30 Report of Board for Study of Tropical Diseases as They Exist in Philippines Quarter Ending Dec 31 1911 W P Chamberlain and E B Vedder U S Army
31 Medical Department of Organized Militia Depends on Intelligent and Enthusiastic Cooperation of Headquarters and Line for Satisfactory Sanitary Conditions in Camp H H Donn U S Army
32 *New Method of Venereal Prophylaxis R A Bachmann U S Navy
33 Venereal Prophylaxis. W T Davidson U S Army
34 Scheme for Carrying Out Venereal Prophylaxis in Army Posts H H Smith U S Army
35 Experiments With A. and N Tube to Determine Its Efficiency as a Gonococcocide F F Russell and H J Nichols, U S Army

32 **Venereal Prophylaxis**—To devise a means combining practicability, low cost and efficiency, Bachmann experimented with an application that should possess the triple property of being prophylactic against gonorrhea and chancroid as well as syphilis Beginning with calomel ointment as a necessary ingredient, the next step was to find a suitable antiseptic to fortify its action against the other two diseases He selected trikresol as the secondary ingredient because in laboratory tests it has been proven the most potent of the phenol group In 1 per cent solutions it is more active than phenol chinosol, creolin, lysol, etc, killing not only gonococcus but also streptococcus, pneumococcus and bacillus typhoid after one minute s exposure Ducrey's bacillus of chancroid is considered to be no more resistant to antiseptics than the above organisms, hence trikresol seemed to fill both requirements As to the method of application, it has been Bachmann's opinion for a long time that to insure protection against gonorrhea after a time greater than an hour the prophylactic must be placed deep in the urethra and must remain there for some time An ointment fulfils the latter requirement, and to facilitate its application he devised a soft rubber tip 1½ inches long, which is attached to the end of the tube The tubes are made of two sizes, a small one is intended to be carried on the person and used immediately after exposure The large one is intended to supplement the smaller tube and should be used on board ship on those patients who report exposure without having used a small tube It contains sufficient ointment to protect twenty five men The rubber tip is to be cleansed with bichlorid alcohol after each insertion

Therapeutic Gazette, Detroit

July 15 XXVII No 7 pp 457 532

36 Limitations and Scope of Office Treatment in Gynecology G E Shoemaker Philadelphia
37 Value of Extract Corpora Lutea A S Jaeger Indianapolis
38 Quinin and Urea Hydrochlorid Solution as Local Anesthetic for Tonsillectomy H Kahn Chicago
39 Thiosinamin in Arteriosclerosis G I Lydston Chicago

Bulletin of Johns Hopkins Hospital, Baltimore

August XXIII No 258

40 *Cutaneous Reaction of Syphilis J M Wolfsohn Baltimore
41 *Studies in Tuberculosis G B Webb Colorado Springs Colo
42 John Bell Surgeon 1763 1820 F R Corson Savannah Ga
43 Some Suggestions to Those on Whose Aid the Success of Ophthalmic Surgeon in Considerable Measure Depends S Theobald Baltimore

40 **Cutaneous Reaction of Syphilis**—*In reviewing a series* of one hundred and fifty cases Wolfsohn noted that in many cases of tertiary and of latent syphilis the site of the control injection showed almost *as marked a reaction as developed* about the point where the luetin was injected This as was pointed out by Neisser and Bruck and which seems to be confirmed by Noguchi and this *series of tests appears to be due* to the susceptibility to trauma of the skin of syphilitics late in the disease (*Umstimmung*) for not one of the seventy control patients reacted *on the side in which the control emulsion* was injected (Experiments are now under way in which a series of patients not selected are being inoculated with the control emulsions only) *The* patients exhibiting the most marked "control reactions (*Umstimmung*) were those suffering from syphilis in its later stages Wolfsohn is [illegible] that the luetin reaction is spec [illegible]

more thoroughly we understand them the better we shall be able to employ them, and the more satisfactory results we shall obtain With a knowledge of those on which we can rely, knowing, too, their limitations, for it is evidently as essential *to know* what *a remedy cannot accomplish* as to recognize what it can, we can have more confidence in their prescription

Iowa Medical Journal, Des Moines

July 15 XIX, No 1 pp 1 50

99 Prevention of Typhoid by Vaccination O Clark, Keokuk Iowa
100 Modern Progress in the Knowledge of Syphilis A Schalek Omaha
101 *Practical Management of Normal Labor C A Henry Farson Iowa*
102 Omentum in Abdominal Surgery C E Ruth Des Moines
103 Surgeon Lister H O Williams Ottumwa Iowa
104 Malignancy G W Hinkle Harvard Iowa
105 Cholecystitis and Cholelithiasis in Their Relation to Pregnancy L H Branson Iowa City

Boston Medical and Surgical Journal

August 8, CLXVII No 6 pp 181 216

106 Some Unsolved Problems of Gastro Enterology W B Cannon Boston
107 *Mexican Scorpions and Treatment of Scorpion Sting L H Mills Esperanza Sonora Mexico
108 Importance of Differentiating Catarrhs of Large and Small Intestine A E Austin Boston
109 Traumatic Rupture of Diaphragm With Other Injuries Operation Recovery F J Cotton Boston
110 Multiple Cramps of Psychogenic Type in a Telegrapher T A Williams Washington D C

107 **Treatment of Scorpion Sting**—The treatment of scorpion sting, Mills says, varies with the severity of the symptoms In general it consists of simple incision and the local use of evaporating lotions In severe cases, incision should be employed, combined with lumbar puncture, which may be repeated if necessary, and the repeated hypodermic injection of scorpion blood to total about 1 c c per kilo of body weight The internal administration of stimulants such as black coffee and aromatic spirits of ammonia, or hypodermic and rectal stimulation if unconscious are also indicated

New York Medical Journal

August 10 XCVI No 6 pp 257 304

111 The Proteins. D D Van Slyke New York
112 Comparative Value of Physical Signs and Roentgen Ray in Determining Chest Conditions E. A Miller and A J Quimby New York
113 Heath s Conservative Mastoid Operation and Its Pathologic Foundation F A Leslie Toledo Ohio
114 Sketch of Cancer Question to Date E E Hubbard Kansas City Mo
115 Ten Sex Talks to Girls. I D Steinhardt New York.
116 Tuberculous Meningitis H Rabinowitsch New York
117 Antivaccination and Medical Profession I W Brewer Fort Niagara N Y
118 Prenatal Influences L D McEvoy New York

Medical Record, New York

August 10 LXXXII No 6 pp 230 276

119 Birth Rates Overpopulation and Cost of Living C E Woodruff U S Army
120 Sporadic and Epidemic Poliomyelitis W H Thomson New York
121 Persistence of Certain Racial Characteristics P Kintzing Baltimore
122 *After Care of Discharged Cases of Pulmonary Tuberculosis A Meyer New York
123 Insurance Examiner and Blood Pressure Test F A Faught Philadelphia
124 Race Resistance H Greeley Brooklyn
125 Exophthalmic Goiter A A Eshner Philadelphia
126 Case of Henoch s Purpura Treated With Human Blood Serum Recovery S J Wilson Brooklyn

122 **After Care of Discharged Cases of Pulmonary Tuberculosis.**—Meyer believes that the time seems ripe for the introduction of another factor into the after care of apparently cured and arrested cases and that is the establishment of industrial and farming colonies A few small farm colonies have been established nothing has been done along industrial lines In this country the experiment has been tried on a very small scale by the Eudowood Sanatorium, Maryland It purchased a tract of land adjacent to the institution and eight men and boys who had been discharged were put to work raising hay corn and tomatoes Wages were given It is claimed that this is the first attempt in this country to provide those leaving a sanatorium with work in a field where they may be able either partially or completely to support themselves under such guidance and in such favorable surroundings that the cure they have made is likely to become permanent" Meyer advocates the establishment of farming and industrial colonies by one of the following methods, either as annexes to existing sanatoria or by the establishment of such colonies as independent undertakings, by public and private philanthropy apart from preexisting institutions

Of the two methods he prefers that of annexes to existing institutions for the following reasons It will be easier to get the patients to remain because of familiarity with their environment and because of restoration to health at that place It will be easier to prepare the way for the settlement of other members of the family in the same community during the last weeks or months of sanatorium care, and pending discharge It will be easier to acquire land for factories and farms because communities where sanatoria already exist would not oppose their establishment, for they have not the phthisiophobia prevalent everywhere else It will be easier to enlist the aid—both by counsel in the developing stage and by guidance and supervision in the fully developed stage—of many medical men who have been most enthusiastic in the tuberculosis campaign The same applies to the volunteer boards of lay people now administering some of these institutions It will avoid much of the delay that would be caused by hunting for new sites and a discussion of their general availability for the care of convalescent tuberculosis cases It may prove easier to obtain financial aid from state, municipal and private sources as an extension and evolution of the humanitarian work already undertaken by them, rather than for the initiation of an entirely independent scheme

Journal of Arkansas Medical Society, Little Rock

July IX No 2 pp 37 60

127 Importance of Early Diagnosis in Appendiceal Disturbances C R Shinault, Little Rock
128 *Auto Intoxication H P Collings Hot Springs
129 Duty of Physicians to Teach Mothers W Crutcher Pine Bluff
130 Dermatology and Syphilology W R Bathurst Little Rock
131 *Climate in Tuberculosis J S Shibley Booneville*
132 Adenoid Vegetation and Nasal Occlusion With Special Reference to Their Influence Over Cerebration J M Wallace *Fort Smith*

128 Abstracted in The Journal, June 29, p 2049

Laryngoscope, St. Louis

July XXII No 7 pp 917 996

133 Cases of Plastic Surgery J C Beck, Chicago
134 Case of Otosclerosis With Pathology A M Amadon Boston
135 Physiology of Cochlea E D Wales Indianapolis.
136 Bacteriemia in Its Relation to Purulent Otitic Disease J H Guentzer, New York
137 Mucocele of Frontal Sinus With Dilatation. G C Hall Louisville Ky
138 Fibroma of Nose and Naso Pharynx With Sudden Malignant Degeneration V Dabney Washington D C
139 Circumcision of Uvula H Hays New York
140 Unusual Case of Elongated Uvula C W Kollock Charleston S C
141 Prognosis and Treatment of Tuberculosis of Larynx W Freudenthal New York

FOREIGN

Titles marked with an asterisk (*) are abstracted below Clinical lectures single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 27 II, No 2691 pp 157 212

1 * What Are We? What Are We *Doing Here? Whence Do We* Come and Whither Do We Go? Sir J Barr
2 *Relations of the Circulation G A Gibson
3 *Personal Experiences in Surgery of Large Intestine F T Paul

1 **"What Are We? What Are We Doing Here? Whence Do We Come and Whither Do We Go?"**—Barr speaks of eugenics venereal disease sanitation and prevention of disease He concludes as follows

> The path of progress which I have tried to point out will in the future devolve on such great associations as the British Medical—associations which have got no selfish interests to serve but which have only the honor and dignity of the medical profession and the welfare of the public at heart We often hear such bold statements as that the general medical practitioner is doomed his occupation has gone and his livelihood has vanished Those who

thus talk have their heaven *in statu quo*—they think there is no blessedness beyond the maintenance of their own ignorance In my opinion the future of medicine will rest with enlightened and highly educated general practitioners—men who will look after the health of the community who will see that mechanism of a high order is produced and who will see that the machinery of the individual is properly lubricated and not subjected to any unnecessary friction or strain The enlightened public will look to their medical attendants as guides philosophers and friends both in health and disease

As has been long advocated by the British Medical Association we must have a properly regulated state examination and the vested interests of corporations must not be allowed to prevail against the public weal Mere examining corporations which have done practically nothing for medical education and are chiefly engaged in extracting fees from students should be allowed to retire into obscurity There is here plenty of good work for an able statesman—a man determined to lead and to prevent the present policy of drift The work of the medical profession should be such as to attract the brightest youths in the country We must recognize that the outlook of the medical profession though at present somewhat dismal is merely a transition stage which will soon pass away

2 **Relations of the Circulation** —Gibson points out that the circulation in all the higher animals may be regarded as based on four primary groups of principles, viz. its mechanical arrangements, the chemical changes by which it is maintained, its modification by glandular secretions and its adjustment by nervous agencies While reviewing recent work on all of these it is to the effect of glandular and other tissues on the circulatory mechanism that he devotes the greater part of his address He first instances the closeness of the connection between glandular and circulatory changes by reviewing the symptoms and pathologic anatomy of exophthalmic goiter, myxedema, acromegaly and Addison's disease, and then summarizes some of the chief facts in regard to our knowledge of internal secretions and hormones The well known properties of thyroid extract and of epinephrin are briefly discussed, but the functions of the pituitary body and the actions of extracts from its different parts are considered at some considerable length

After referring to the well established value of thyroid extract in myxedema and cretinism he points out that it may also afford invaluable service in several conditions which are very likely to be overlooked such as the minor degrees of thyroid inadequacy occurring at the climacteric period or shortly afterward He also instances its usefulness in conditions of lack of growth in the youth of both sexes He believes that thyroid extract influences blood distribution and nutritive possibilities in the most powerful manner In regard to suprarenal extract or epinephrin Gibson alluded to its use by J D Rolleston to prevent heart failure in diphtheria and also to its employment in conditions in which pyrexia has led to diminished function of the suprarenal bodies He has also found this substance to be of great value in the treatment of exophthalmic goiter and states that it has no rival in the management of this affection He has found that under its influence the pulse rate is reduced the protrusion of the eyeballs disappears, the thyroid gland gets smaller, and the tremor together with the other nervous symptoms vanishes He therefore inveighs strongly against the present tendency to submit patients with exophthalmic goiter to surgical operation He also advises the use of pituitary extract in the treatment of certain conditions in which the arterial blood pressure tends to fall as in pneumonia and other acute diseases

3 **Surgery of Large Intestine** —Paul restricts himself to the consideration of cases in which the following operations have been employed 1 Colotomy 2 Short circuiting 3 Colectomy 4 Excision of the rectum He has done colotomy on sixty eight patients in private practice during the past ten years In forty four of these there was no obstruction or it was chronic in type and all recovered In twenty four acute obstruction was present and nine deaths occurred These were mostly in old people with vomiting (often fecal) meteorism and collapse It is interesting to note that eighteen of the cases of complete obstruction were met with during the first period of five years and accounted for seven of the nine deaths while in the remaining period there were only six cases with two deaths showing that practitioners are recognizing the importance of earlier surgical treatment Paul does not recommend short circuiting operations in the presence of any severe form of obstruction such as is likely to be fatal without immediate relief He has had the best success when he has cut out of circuit the smallest possible amount of bowel He therefore usually short circuits just around the growth or other obstruction In non malignant cases the bowel appears to be quite normal afterward and in malignant cases the patients often enjoy a considerable period of comparative comfort During the last ten years Paul has only short circuited in twelve private patients with no deaths Ileum to colon eight, colon to colon four, cancer seven, inflammatory five

Paul has undertaken colectomy on eighteen private patients during the last ten years Only one died the patient in whom he attempted primary suture an otherwise favorable case of malignant growth in the transverse colon The remaining seventeen were done by the glass tube operation and all recovered though some of them were advanced in years Among the most interesting points noted in the table is the long survival of patients who have been operated on for cancerous growths Of the seventeen cases three were non malignant and fourteen cancer Of the latter eight patients are still living, and not known to have recurrence, two have died from apoplexy, and four have died from recurrent growth at two and a half, three and a half, three and a half and seven years respectively During the last ten years Paul has excised the rectum for cancer in twenty eight private patients Two deaths occurred, one the double route operation in a male the other a high resection in a female Neither were good subjects and Paul says he would now probably exclude them both doing a colotomy instead Of the twenty eight, thirteen are still living at one, one, two, two and a half, three, three and a quarter three and a quarter, five, six, six, seven and a half, nine and ten years respectively Of the remaining fifteen twelve died from recurrence after an average duration of life of thirteen months One died from other cause without recurrence, and two died from the operation

Lancet, London

July 27 II, No 4639 pp 209 282

4 *Relations of the Circulation C A Gibson
5 *Personal Experiences in Surgery of Large Intestine F T Paul
6 *Syphilitic Lung Affections and Immunity in Native Races H C French
7 *Causes Leading to Educational Deafness in Children M Yearsley
8 *Distribution of Chloroform in Blood G H Clark and D Lindsay
9 *Two Unusual Forms of Meningitis Occurring in Infancy F B Smith and A W G Woodforde
10 Two Cases of Pulsating Exophthalmos in Which Carotid Artery was Ligatured R R James and W I Fedden

4 and 5 Abstracted from the *British Medical Journal* Nos 2 and 3

6 **Syphilitic Lung Affections** —French is inclined to the belief that neglect, dirt and pus and those factors that conduce to phagedena are primarily responsible for perpetuating severe early forms of syphilis in addition to diminished resistance in the individual dependent on blood conditions As regards prevention local measures such as pure phenol and ethyl chlorid applied in the initial stages to chancres of all kinds rapidly heal them and to ensure good general health is probably quite as important as to administer mercury potassium iodid or salvarsan

7 **Educational Deafness in Children.**—Yearsley pleads strongly for a better recognition and more systematic teaching of otology in medical schools Instead of being the Cinderella of the specialties it should be insured that no student receives a qualification to practice until he has a competent knowledge of the causes of ear disease and their prevention The prevention of deafness needs a universal knowledge on the part of the profession of the etiology and treatment of the causes leading to defective hearing and such a universal knowledge can only be made possible by the recognition of otology as an important part of the syllabus The importance of good hearing in the intellectual and moral development of children and the serious handicap of moderate or even slight degrees of deafness Yearsley says has been patent to a limited group of educationists and otologists for some time past It is but lately that the full significance of the [illegible] of hearing in education has become at all [illegible] lect of diseases of the ear [illegible] and

has but comparatively recently given place to a better knowledge of their etiology and a better understanding of their treatment, while the work done on the pathologic conditions of the upper air passages, to which the great majority of them owe their origin, has supplied ample means for their prevention There is still, however, Yearsley says, an enormous number of children suffering from ear disease who are allowed to go untreated, some of whom fill deaf schools while others become hopelessly deaf in after life and swell the numbers of physically defective citizens but whose condition could have been prevented by timely and skilful intervention Yearsley claims that of the children who thus suffer 50 per cent are curable, and of the remainder a considerable proportion could be improved, while the greater number are preventable

8 **Distribution of Chloroform in Blood**—Evidence is given by Clark and Lindsay that in rabbits the blood contains a larger proportion of chloroform in the plasma when the anesthetic is given subcutaneously than when it is given as an inhalation This is considered to be the reason for the delay in elimination and the consequent greater injury to the tissues which is associated with this mode of administration

9 **Meningitis in Infancy**—The interesting features of the first case cited by Smith and Woodforde are (1) The long duration of the case, viz., fourteen weeks, (2) the appearance in the first instance of a suppurative meningitis due apparently to a leptothrix alone, (3) the slight initial symptoms associated with this form of suppurative meningitis, and (4) the apparent tendency to recovery from this infection which was prevented by the very unusual sequence of a secondary infection of the meninges by the tubercle bacillus The second case was one of meningitis due to the *Bacillus coli communis*

Practitioner, London

July LXXXIX No 1 pp 1 156

11 Some Relationships Between Fits and Mental Disorder Sir G H Savage
12 After Treatment of Abdominal Sections Based on 1 232 Cases E S Bishop
13 Cyclical Vomiting F Langmead
14 Primary and Early Secondary Tuberculous Cystitis D Newman
15 Orthopedic Surgery A H Tubby
16 Measurement of Deformity P B Roth
17 Literature on Diseases of Children H Thursfield.
18 Recent Advances in Syphilis and Gonorrhea J S Joly
19 Treatment of Syphilis by Salvarsan P E Tresidder and S Tresidder
20 Treatment of Syphilis of Nervous System by Aachen Methods. R Hayes
21 Should Venreal Diseases be Notifiable? S Melville
22 Diagnosis and Treatment of Chronic Suppuration of Maxillary Sinus J Harper
23 New Method of Applying Carbon Dioxid Snow W K Sibley
24 Surgical Shock W B Secretan
25 Treatment of Cellulitis With Special Reference to Hand and Arm B Hughes
26 Drs Bonjat and Bidloo J Rae

Indian Medical Gazette, Calcutta

June XLVII No 6 pp 209 256

27 Medicolegal Work in Calcutta Morgue 1911 O S Moses.
28 Intracapsular Operation for Cataract (Smith s Method) from Point of View of Civil Surgeon F P Connor
29 Ten Months Work in Military Employ J H Burgess.
30 Psycho-Analytic Method of Treatment of Neuroses O Berkeley Hill

July XLVII No 7 pp 257 300

31 *Second Clinical Report on Treatment of Leprosy by Use of Vaccine Prepared from Cultivations of Leprosy Streptothrix and Further Experiments. E. R Rost
32 Outbreak of Rat Plague in Suffolk and Manchurian Epidemic of Human Plague W C Hossack.
33 Discovery of Hitherto Undescribed Infective Disease Occurring Among Population of Rangoon A Whitmore and C S Krishnaswami
34 Use of Ultra Violet Rays in Sterilization of Water W W Clemesha
35 Diameter of Cornea Especially in Its Bearing on Cataract Extraction H F L Taylor
36 Outbreak of Epidemic Jaundice F H V Hodge

31 **Vaccine in Leprosy**—Commenting on his twenty two patients five of whom have practically recovered and fifteen have shown marked improvement while the remaining two patients showed neither improvement nor increase Rost says that improvement is very slow The anesthetic patients should be given much larger doses of vaccine than the tubercular ones Rost says that these twenty two patients have had no other treatment beyond the weekly injections of vaccine and have all been under observation at the Kemmendine Leper Asylum But some private patients treated by Rost showed more rapid improvement by adopting the salt adjuvant, stopping the consumption of sugar and fish in the diet and causing erythema of the skin by very hot baths, irritating application or friction a few hours after the injection of the vaccine

33 **Unknown Infection**—There is prevalent in Rangoon a peculiar septicemic or pyemic disease caused by an infection with a bacillus whose characters are so distinct from other known pathogenic bacteria that it can be readily isolated and certainly identified The disease so far as the present evidence goes is peculiarly prevalent among chronic morphia injectors The authors' clinical knowledge is at present so meager that only a bare suspicion of such infection can be excited by clinical signs, but bacteriologic knowledge is sufficiently complete to allow such suspicion to be decided rapidly by the aid of the laboratory In very many cases the macroscopic appearance of the lesions caused by the infection are sufficiently characteristic to permit a confident diagnosis to be made immediately in the mortuary without the aid of bacteriology, though of course such aid should be sought wherever facilities for laboratory work exist The disease has certain resemblances both clinically and bacteriologically to glanders, but the two infections can be readily differentiated if a proper bacteriologic examination be carried out Confusion would be due to a reliance on the positive results of Strauss' test, as a positive result with this test is common to the two infections

Journal of Laryngology, Rhinology and Otology, London

July XXVII No 7 pp 353 408

37 Technic of Auditory Examination in Infancy P M Constantin
38 Case of Congenital Occlusion of Right Posterior Naris by Bony Plate H B Tawse
39 Reports for 1910 and 1911 from Ear and Throat Department of Royal Infirmary Edinburgh R Verel and J M Dickie

Journal of Obstetrics and Gynecology of the British Empire, London

June XXI No 6 pp 319 382

40 *Vaccines in Treatment of Puerperal Infection R J Rowlette
41 Adenocarcinoma Complicating Myomata of the Uterus in Twin Sisters J H Croom
42 Cause and Treatment of Procidentia Uteri as it Occurs in the Parous Woman H Jellett
43 Case of Obstructed Labor Due to a Uterine Contraction Ring H Williamson
44 *Case of Retention of the Fetus by an Internal Contraction Ring Treated by Continuous Weight Contraction J A Willett
45 *Retraction Ring as a Cause of Dystocia D Shannon
46 Splenic Hemorrhage Complicating Pregnancy J E Gemmell
47 Pregnancy Complicated by Appendicular Abscess. J E Gemmell
48 Pregnancy Associated With Left Chronic Inflammatory Appendage Adherent to Pelvic Floor and to Uterus Simulating Fibroids in Uterine Wall J E Gemmell

40 **Vaccines in the Treatment of Puerperal Infection**—Rowlette is convinced that vaccines, given in small doses, do no harm in puerperal sepsis in fact, in the great majority of cases they do good In many cases they produce immediate and remarkable improvement Autogenous vaccines are more trustworthy than stock vaccines and sometimes succeed rapidly where the latter fail. Anti streptococcus serum given simultaneously increases the effect of streptococcal vaccine To get the best results accurate bacteriologic diagnosis is necessary

44 **Retention of the Fetus**—To have performed an embryotomy in this case, Willett says would have been extremely difficult and the result of this operation in previous cases had seemed to him to be unsatisfactory, so he determined to try the effect of continuous weight traction before interfering further To this end the head was perforated a cranioclast screwed firmly home and attached to its handle by a towel was a weight of approximately eight pounds which hung over the foot rail of the bed (Estimated under as nearly as possible similar conditions the total pull on a spring balance was 6¼ pounds) A hypodermic injection of morphin ¼ gr was given partly in the hope that it might aid in the relaxation of the spasm but chiefly to keep the patient quiet For three hours the patient slept, and during this time there was a

complete absence of uterine contractions She then awoke, and a few slight pains rapidly delivered the child, which weighed 6 pounds 14 ounces minus the brain The remaining liquor amnii which escaped was stained with meconium and offensive The placenta was born naturally twenty minutes later A hot intrauterine douche was given, and it was then noticed that the obstructing ring had disappeared Willett says that this was an ideal case in which to try the effect of continuous weight traction, since the child being dead and the mother's condition not really urgent there was no necessity for rapid delivery

45 **Retraction Ring as a Cause of Dystocia**—The proper treatment in these cases, Shannon says, is cesarean section if the child is alive, and craniotomy if the child is dead In his case immediately after the uterus was emptied the ring suddenly disappeared The patient made an uninterrupted recovery

Annales de l'Institut Pasteur, Paris

June, XXVI No 6 pp 401 496

49 *Influence of Indol on Development of Arteriosclerosis (Influence de l indol sur les scléroses) S Dratschinski
50 Technic for Serodiagnosis (Technique rationelle de la réaction de fixation) M Weinberg
51 Biologic Properties of Albuminoid Substances Extracted from the Brain (Propriétés biologiques des substances albuminoides extraites du cerveau) A Marie
52 Catalytic Fertilizers. (Ftudes sur les engrais catalytiques) E Boullanger
53 *Gall Bladder Favorable Site for Inoculation (De la vésicule biliaire envisagée comme lieu d inoculation Contribution à l étude de l immunite et à la physiologie générale) H Violle Commenced in No 5

49 **Influence of Intestinal Poisons on Development of Arteriosclerosis.**—Dratschinski's communication issues from Metchnikoff's laboratory where so much work has been done in this line The results of the later research confirm the previous announcements as to the toxic influence of indol Guinea pigs given moderate doses developed symptoms of acute intoxication of a neuromuscular nature The symptoms may subside or run a progressive fatal course Long continued small doses by the mouth (0 04 gm a day) induced in guinea pigs an atheromatous degeneration of the aorta and chronic interstitial processes or the first phases of cirrhosis of the liver in monkeys and guinea pigs, sclerosis of the adrenals in monkeys, and the primary stage of sclerosis of the aorta and brain in guinea pigs A natural specific sclerosis was sometimes found in the ascending aorta in guinea pigs, mice and rats, evidently an age phenomenon Several colored plates show the findings in the indol sclerosis

53 **Gall Bladder as Site for Inoculation**—Violle concludes this long report of his extensive experiments with the statement that by arranging conditions in the rabbit so that the gall bladder is made an empty, closed sac, it offers an unexcelled opportunity for the production of antibodies when inoculated with antigens The technic is remarkably easy he says, and there is no severe reaction of any kind Immunization thus induced develops rapidly and seems to be quite durable If the immunization does not seem ample a supplementary intravenous injection of the same antigen effectually supplements the inoculation The bacteria used as the antigen induce an active immunization while the serum of the animals thus treated acquires immunizing properties, bacterial and antitoxic, sufficient to induce passive immunization The phenomena observed confirm the assumption that the antibodies are formed at the expense of the leukocytes, which, attracted to the gall bladder by the antigen readily make their way into it through its vascular connection with the liver, the latter organ serving as a reservoir of blood and hence of leukocytes

Presse Médicale, Paris

July 6 XX No 55 pp 577 584

54 *Chloroform and Its By Effects. (L Anesthésie chloroformique Faits expérimentaux Hypothèse sur la genèse des accidents post-chloroformiques) M Nicloux and G Forquier

54 **Cause of Chloroform Accidents.**—Nicloux and Fourquier report extensive experimental research which has demonstrated that chloroform has a special affinity for fat tissue and next in order for the nerve tissue, liver and kidney, spleen and striped muscle The chloroform passes into the milk and cerebrospinal fluid and into the fetus, the proportion of chloroform in the liver of the fetus is generally larger than in the mother's liver The organs with the largest blood supply take up the chloroform most rapidly and lose it again rapidly, while the fat tissue is very slow in becoming saturated with it, but once in it the chloroform stays there The chloroform is decomposed in the blood, and the chlorids and carbon monoxid thus released take up the normal alkali in the blood so that it loses its alkaline reaction and this, they think is the cause of the accidents under chloroform Every gram of chloroform split up in the blood takes up alkali equivalent to 1 gm of sodium, and more than this of potassium As the total alkalinity of the blood does not surpass 15 gm of sodium or potassium, half of this, more or less is thus neutralized by the splitting up of the chloroform Their research indicates that about 50 per cent of the chloroform is broken up in the body The practical conclusion of their work is that administration of an alkali will restore what has been neutralized by the chloroform Their experiments with sodium bicarbonate, given for this purpose have not been very encouraging, but they are convinced that further research in the line of remedying acidosis will suggest means to avoid or cure accidents under chloroform

Revue Prat d'Obstétrique et de Gynécologie, Paris

June XX No 6 pp 161 188

55 *Disturbances of Micturition of Obstetrical Origin (Troubles de la miction d origine obstétricale Destruction et réfection de l urèthre chez la femme) A Guldjoglou
56 *Abdomino-Pelvic Syndrome in Gynecology R de Langenhagen
57 *Laminaria With Guard (Laminaire avec butoir) R Bonneau

55 **Disturbances of Micturition of Obstetric Origin**—Guldjoglou gives a historical sketch of operations devised to repair obstetric injuries to the bladder and urethra, including Marion's new technic, which he has applied most successfully in two cases The injuries of the urethra rarely heal spontaneously, and chronic incontinence is the rule afterward Even when a plastic operation has been done on the urethra, the weakness of the new walls sometimes allows the incontinence to persist To avoid this Marion utilizes as far as possible what is left of the old urethra piecing it out with a flap from the anterior wall of the vagina and covering it with flaps from the vulva Then, to reenforce the new walls of the urethra he makes a new canal for the urethra in the subpubic tissues, tunneling through them The outcome was entirely satisfactory in the two cases mentioned In another case there was sudden total retention of urine at the third month of pregnancy and it was found that the uterus in retroversion had mechanically obstructed the outlet of the bladder The retroversion was corrected by manipulations and the vagina tamponed to hold it temporarily in place The uterus soon adjusted itself to the changed conditions and there were no further disturbances in micturition Mechanical disturbance of this kind seldom occurs after the third or fourth month The urethra may be dragged out long by traction from the gravid uterus and it may be forced against the pubic symphysis in which case there is liable to be edema and swelling obstructing the lumen Incontinence of urine at the beginning and toward the end of a pregnancy is frequent and is generally ascribed to the pressure on the bladder from the enlarged uterus but it may be the result of traction on the urethra dragging and pulling on its walls until they lose their elasticity An abdominal band to support the uterus might prevent this but repose for a time is generally sufficient in the milder forms

56 **Abdomino Pelvic Syndrome in Gynecology**—Langenhagen warns that the disturbances from loss of balance and inflammation in the genital organs and abdomen the abdomino pelvic syndrome" in women with a constitutional neuro-arthritic tendency do not require surgical measures The diathesis is characterized by a tendency to venous stasis defective nutrition and defective circulation in the pelvis—thus the soil is prepared for congestions spasmodic contractions and pathologic conditions in any or all of the pelvic organs, or viscera the kidneys, liver [illegible] uterus or

99 **Fever Under Salvarsan**—Bingel explains the fever and other by effects of salvarsan as the result of the escape of toxins from the bodies of the spirochetes as they are killed by the salvarsan The toxic action is greater the larger the number of spirochetes in the body The by effects are thus not the work of the salvarsan directly but only indirectly

Wiener klinische Wochenschrift

July 4, XXV No 27, pp 1036 1070

100 Medical Chemistry and Cancer Research (Aufgaben der medizinischen Chemie in der Geschwulstforschung) E Freund
101 *Chemistry of Cancer (Zur Chemie des Karzinoms.) S Fränkel
102 Physiology of the Midbrain (Zur Physiologie des Zwischenhirns) B Aschner
103 *Peptolytic Ferment Index in Differentiation of Exudates (Vorkommen von peptolytischen Fermenten in Exsudaten) R Lenk and L Pollak
104 *Vasomotor Hemiplegia in a Child A Soucek
105 Clinical Study of the Pupil Phenomena (Zur Klinik der Pupillenphänomene) S Goldflam Commenced in No 26
106 Retrospection and Outlook (Rückblicke und Ausblicke) A Barkan (Stanford University Cal)

101 **Cancer Research**—Fränkel is chief of the laboratory at the L Spiegler Stiftung at Vienna and in this address delivered at the recent meeting of the national cancer research society, he discussed the peculiar behavior of tryptophan in malignant disease and in pregnancy, and qualitative tests to determine the amount present in the fluids examined None other of the amino acids, he stated, is able to do the physiologic work of tryptophan, and only those albuminous bodies which contain tryptophan are able to supply the organism with the needed albumin On the other hand, the albumin used in the structure of cancer contains no tryptophan, or only traces He thinks that further research on tryptophan will clear up some of the mysteries of cancer As cancer and embryonal cells seem to be peculiarly sensitive to the action of alkaloids, he has been experimenting with the action of compounds of arsenic and chinolin, the first time, he states, that heterocyclic compounds of arsenic have been produced

103 **Improved Tryptophan Test for Cancer**—Lenk and Pollak announce that they have succeeded in determining a peptolytic index in various body fluids which differentiates the various exudates and some of their causes They determined the dilution of the solution at which there is no further trace of free tryptophan and accept this as the peptolytic index They examined the effusion in pleurisy, the ascitic fluid and cerebrospinal fluid in 165 cases, and found that in normal conditions and with stasis exudates the fluids have only slight glycyltryptophan splitting power, it is more marked with inflammatory effusions, but it is strongest with cancer juice and with exudates of tuberculous origin The peptolytic power of the cerebrospinal fluid obtained by lumbar puncture will thus reveal at a glance whether the symptoms are due to uremia serous meningitis or tuberculous meningitis In some cases they were able to ascertain by this means the coexistence of a tuberculous peritonitis with ascites from cirrhosis of the liver in others to exclude it positively [A number of articles on the tryptophan test have appeared in THE JOURNAL, Oct 20 1911 p 1420 and April 27, 1912, p 1319 and others]

104 **Vasomotor Hemiplegia**—In Soucek's case the boy of 10 had mild cerebral apoplexy develop while exercising in a gymnasium The right hemiplegia was accompanied by severe pain in the opposite temple but all the symptoms subsided without a trace after three days Soucek states that the boy had an unusually unstable vasomotor system and the father and brother were subject to migraine He is inclined to explain the trouble as merely a vasomotor phenomenon, the result of local ischemia of the brain such as is responsible for intermittent limping and nervous angina pectoris The boy's arteries were hard and stiff, a frequent finding in these 'vasomotorers' Féré described a case of recurring transient vasomotor hemiplegia in a man of 43 who had suffered from migraine since he was 19

Policlinico, Rome

July 7 XIX No 28 pp 1001 1040

107 *Bicycle Tire for Extension of Fractured Leg. (Nuovo metodo di estensione della gamba) I Soria
108 Malaria in Relation to Operations and Trauma (Studio dell infezion malarica in rapporto agli interventi operativi ed ai traumi) B Prampolini
109 Malarial Cerebellar Syndrome F Iozzilli

107 **Technic for Extension After Fracture**—Soria winds a bicycle tire around the leg and inflates it with the air pump This holds the fracture firm, even an oblique fracture, and permits traction from the start with two strips of cloth lengthwise of the leg under the inflated tire and extending below the foot to form a loop The tire can easily be removed at any time and is readily replaced If the pressure is too tight, a little air can be allowed to escape or the pressure can be increased by pumping in a little more air The method has been applied with excellent results in the hospital at Tunis The facility of procuring a bicycle tire and pump almost anywhere are special advantages

108 **Malaria in Relation to Trauma and Operations**—Prampolini practices in a malarial district and he calls attention to the way in which malaria is liable to flare up after an accident or operation the onset of fever frequently proving misleading to the surgeon or physician When the organism is weakened from any suddenly acting cause of the kind, it is possible for malaria to get its grip on the patient for the first time He reports the details of nine cases to show the puzzling conditions that may result unless the possibility of malaria is borne in mind The syndrome of malaria may be present even although the number of parasites in the blood is very small, it may be necessary to examine a number of slides before one is discovered In one of his cases the enlarged spleen suggested malaria but the blood was sterile before the operation, afterward the parasites were comparatively numerous in the blood

Riforma Medica, Naples

June 29 XXVIII No 26 pp 701 728

110 *Modification of Peristalsis With Gastric Tumors (Sul valore diagnostico dell alternata peristalsi nei tumori dello stomaco) F Perussia
111 *Chronic Enlargement of Spleen and Liver With Multiple Lymphadenitis. (Spleno-epatomegalia cronica febbrile—de virus ultramicroscopico?—con varieta poliadenitica) U Gabbi Commenced in No 25

110 **Peristalsis of the Stomach With Local Tumors**—Perussia analyzes the roentgenoscopic findings in six cases of gastric cancer emphasizing the modifications in the peristaltic movements The modified peristalsis may be evident before any other signs permit differentiation of the lesion The behavior of the peristalsis is characteristic for malignant or benign stenosis and for cancer or ulcer In one case the only sign that suggested cancer rather than ulcer was the fact that the peristaltic wave, starting in the middle portion of the stomach, seemed to be arrested for a moment as it neared the pylorus region, and then continued, but very sluggishly In two cases the peristaltic wave ran along the greater curvature but died out as it approached the pylorus In another, the wave seemed to turn back on itself as it reached the pylorus region, without any absolute contraction of the pylorus In the sixth case the peristalsis was very torpid throughout the greater curvature and died out before it reached the antrum of the pylorus Cancer was found at the operation in all these cases except the last in which the trouble was advanced primary ulcerative tuberculosis of the stomach, its effect on peristalsis being much like that of malignant disease

111 **Chronic Febrile Enlargement of the Spleen and Liver With Multiple Lymphadenitis**—Gabbi gives the details of four cases in which this clinical picture was presented The features of the cases excluded malaria and pernicious anemia, but the course seems to be invariably slowly progressive No benefit was observed from the different measures tried The patients were adults, and the constantly negative bacteriologic and protozoologic findings and the multiple lymphadenitis in the absence of tuberculosis and syphilis, give the affection its special imprint It is possible, Gabbi remarks in conclusion that certain other cases of febrile splenomegaly on record may belong in this category

Ugeskrift for Læger, Copenhagen

July 11 LXXIV No 28 pp 1017 1056

112 Advantages of Albumin Milk for Sick Infants (Om Aeggehvidemælk) V Poulsen

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PROGNOSIS IN CHRONIC HEART DISEASE AS ADVERSELY AFFECTED BY CERTAIN MEDICAL TRADITIONS*

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ST PAUL

Despite the astonishing achievements of the last thirty years in the study and solution of cardiovascular problems, we are still acting for the most part on obsolete principles of therapeutic initiative

It is doubtless impossible to maintain the ideal balance and relationship between research on the one hand, and diagnosis, prophylaxis, therapy and prognosis on the other Unscientific pseudodiscoveries are promptly inflated, widely heralded and too often hastily adopted, whereas important isolated truths may lack general acceptance because of their publication in journals inaccessible to the great body of our profession and the less fervid propaganda of the scientific investigator who is often too deeply immersed in the individual problem to devote either time or attention to its possible points of contact and articulation Frequent, periodic, systematic and authoritative reporting of the discoveries of modern medicine with well-considered suggestions as to their application to diagnosis, therapy and the prevention of disease, in a more complete and exhaustive way than is done by any existing year-book, would be invaluable to both general practitioner and specialist and enormously broaden and stimulate coordinate and productive research in the clinical field Difficult above all is the task of establishing new rules of action when these traverse and run counter to a theory and practice so fixed by long usage as to have become traditional

PROGRESS IN KNOWLEDGE OF THE HEART

We have now learned that heart-muscle is paramount in clinical cardiovascular problems even though valvular lesions arteriosclerosis or pericardial inflammation be the more obvious and obtrusive elements in the given case

A flood of light was thrown on the problems of the circulation when Gaskell formulated his myogenic theory, and his shrewd and experimentally buttressed assumption of an impulse-conducting bridge in the human heart has now become an accepted anatomic and physiologic fact through the discoveries of Kent and His the younger amplified and reinforced by the work of Tawara, Keith Flack, Aschoff and others, which has demonstrated the nodes of initial contraction and regulation in the wall of the right auricle at the confluence of three great venous rivers

The modern conception of heart-muscle function rests on Gaskell's demonstration of the heart's potential autonomy as proved by the capacity of the individual fiber for stimulus production, reception conduction, contraction and tonus, and this concept has so advanced our solution of vital circulatory problems as to render negligible the minor points yet at issue between the respective adherents of the neurogenic and myogenic doctrines To these discoveries have been added the experiments of Merunowicz, Ringer, Loeb and Howell showing that the maintenance of cardiac rhythm depends on the presence and interaction of balanced solutions of certain metallic salts or their ions in the circulating blood

The marvelously specialized muscle fibers of the heart are naked, freely anastomosing, so disposed and inserted as to make each fiber a constituent of both ventricular chambers and so attached as to afford the maximum of required contraction with the least expenditure of energy Krehl, Ludwig and MacCallum have demonstrated the presence of a separate band surrounding and strongly supporting both mitral and aortic orifices

H P Bowditch's law of "maximal contraction" and that of Marey relating to "the refractory period" have been sustained and amplified and [illegible] play an important part in modern studies relating to physical [illegible] and cardiac reserve

Engleman has formulated the influ[illegible] obscurin[illegible] each of the functions of the cardiac muscle fibers [illegible] deduct[illegible] affecting [illegible] host of observers have extended our knowledge of the [illegible] nervous mechanism of the circulation Hering has given us a new classification of the arhythmias and Thomas Lewis has beautifully stated the scope and limitations of instrumental method in clinical work

Mackenzie has done yeoman service for the patient and practitioner by insisting on the [illegible] and more rational interpretation of symptoms in [illegible] disease has demonstrated unexpected value in the [illegible] graphic record and with Cushny and [illegible] lished the nature importance and diagnosis [illegible] auricular fibrillation

Contribution relating to [illegible] mu al pressure have proved of great [illegible] chapter in medicine has resulted from [illegible] and ever widening clinical employment of [illegible] manometer, reinforced by the [illegible] auscultatory method of Korotkov [illegible] of accurate graphic record The [illegible] tion thus obtained may now be [illegible] apparatus of Erlanger and Hooker [illegible] pressure the determination of [illegible] apparatus of [illegible] by the method [illegible]

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* Oration on Medicine before the Section on Practice of Medicine of the American Medical Association at the Sixty Third Annual Session, held at Atlantic City June 1912

The x-ray has greatly extended its field and shown unexpected value in both experimental and clinical work Through it we obtain heart-outlines, recognize the enlargements of individual chambers, detect aneurysm, and may even take kinematographic records or photograph the heart in single phases of its cycle

Einthoven's string galvanometer (the electrocardiograph) records the rhythmic flow of the electric action currents of the heart through the deflections of an almost microscopic filament suspended between the poles of a magnet, and connected with the body of the patient This thread is magnified and its movements photographed on a moving film, thus yielding a record of the stimuli preceding the contraction of the heart-chambers Its possibilities are great, though as yet not fully developed and it has already taken its place among the diagnostic instruments of precision of the hospital clinic and the laboratory

Among the modern miracles of refined method is the registration of heart-action by Meara and Crehore's method of light interference rings and the success of Joachim and Weiss and of Ohm in photographing both heart-sounds and murmurs

Esophago-atriography is the name given to the making of graphic records (esophago-atriograms) of the left auricular contraction by means of Rautenbach's or Monkowski's esophageal bulb Janowski not only secures simultaneously records from both right and left auricles by means of the venous pulse and the esophageal bulb, but by using a modification of the turgosphygmograph of Strauss, can add a record of the heart-sounds

I cannot now do more than thus suggest by these few references the astonishing activity of the investigator in this department of medicine nor even touch on the wealth of clinical and pathologic contributions of great direct and indirect value

PERSISTENCE OF OLD IDEAS

Despite this progress we for the most part hold to our traditions in relation to prophylaxis and treatment and hence fail to secure that longer lifetime for the victim of chronic heart-disease to which he is clearly entitled

It would seem that this fact depends chiefly on

1 Our traditional fear of so-called "meddlesome interference, combined with either a dangerous and statistically unwarranted optimism on the one hand or a no less extreme and equally dangerous pessimism on the other, with relation to the after-lifetime of these patients

2 A traditional disregard of subjective symptoms and a consequent failure to classify group and articulate with physical signs those subjective expressions of minor cardiovascular insufficiency of the utmost importance in diagnosis and treatment

3 A widely prevalent misconception of the nature of so called compensation and its adequacy as a protective agency

4 Our consequent failure to come to the relief of the heart at the time when therapeutic interference is most valuable to the patient in relation to his after-lifetime

5 An unreadiness to recognize and apply such means of prevention as have been placed in our hands

6 A general tendency to neglect chronic ailments and chronic heart-disease in particular

OUTLINE FOR A REVISION OF IDEAS

I believe that we should act on diametrically opposite principles namely that

1 While deprecating the treatment of hearts merely because arhythmia or murmurs are present, we should nevertheless realize that we cannot harm any patient by administering a few doses of digitalis or any other appropriate drug, by temporary physical rest or by regulated exercise

2 The therapeutic test is not only useful in our analysis of the cardiac arhythmias but is often an indispensable aid to the early diagnosis of those lesser cardiac insufficiencies which attest a struggling heart and should be dealt with wherever and whenever encountered

3 With a broader conception and better knowledge of the subjective symptoms of cardiac insufficiency we are not only justified in timely therapeutic interference, but constrained to exercise that closer supervision and control necessary to conserve and prolong the life of the patient

4 We should recognize the fact that so-called perfect compensation never exists, save in the mechanical sense of an adjustment of circulatory equilibrium, that dilatation is the primary change in valvular lesions, that hypertrophy is slowly produced, never concentric but always associated with varying degrees of dilatation to which must too often be added a progressive degeneration of the heart-muscle and a defective coronary circulation

5 So-called compensatory cardiac changes are adaptive rather than truly compensatory and physician and patient alike are chiefly concerned with the margin of heart-muscle response

6 The incidence of heart-disease may be largely reduced by the practical application of modern views relating to the etiology, diagnosis and treatment of those infections chiefly responsible for endocarditis, myocarditis and the vascular degenerations

7 Of the entire domain of medicine chronic disease offers the most grateful field for the exercise of the specialist and research worker

8 Chronic sufferers endure a sum-total of deprivation and suffering infinitely greater than that entailed by acute conditions, whether medical or surgical, and finally chronic heart-disease even though it be incurable is wonderfully responsive to timely and well-directed effort

9 The average after-lifetime of the patient having heart-disease may be long or short according to the nature of his lesion and the interaction of so many personal factors as to render each case a matter of individualization Individual examples of long life justify encouragement of the patient but must not deceive the physician as to the average life expectation of cardiac cases as determined by the recorded and tabulated experience of life-insurance companies

CARDIAC INSUFFICIENCY

Five years ago I observed that an apparent splitting of the second heart-tone as heard over the third left intercostal space near the sternum, seemed to represent the earliest recognizable sign of aortic insufficiency occurring in men above 40, and that it was usually though not invariably associated with a history of acute heart-strain, which initiated a series of most interesting and misleading subjective symptoms As is usually the case after an initial observation such instances have multiplied and I now have a considerable number under observation and have been able to follow closely certain of the curiously instructive phases of the early lesion The split second sound is usually inaudible at any point removed from the immediate vicinity of the third left sternochondral junction or third left interspace near the sternum It has in nearly every case alternated later with a distinct but atypically short diastolic murmur which has tended to become established as a persistent murmur or, as has happened in three instances, entirely disappear

A capillary pulse has invariably been present, usually varying directly in intensity with the auscultatory phenomena, together with a radial pulse of the modified Corrigan type showing the decided but peculiar differences between systolic and diastolic readings characteristic of aortic incompetence in middle-aged individuals

The heart-outline in these walking patients as developed by percussion and checked by the *x*-ray examination has invariably been distinctly large and of the aortic type, but any decided clinical signs of hypertrophy have been lacking over long periods On the contrary, recession of the border under cardiac stimulation and physical rest has been prompt, definite and decided, and in three cases of a similar type in younger individuals abnormal sounds have entirely disappeared under such measures and the heart has nearly or quite resumed a normal outline In an elderly patient with interstitial nephritis and high arterial tension, who has carried for at least ten years a relative mitral insufficiency, an aortic lesion of this type has been evident at times for the past two years, varying from the definite murmur of a relative aortic insufficiency to a split second tone or a mere impurity Coincident dilatation and excessive blood-pressure seem to initiate his more decided manifestations.

Equally interesting and more important from my point of view are the subjective symptoms observed in these cases Although almost without exception men of good or even athletic build, several presented the mental and nervous symptoms of so-called "neurasthenia' and had previously been treated accordingly Nearly all complained of nervous irritability, disturbed sleep, precordial and epigastric oppression or actual pain, various gastric disturbances and lassitude or easily induced fatigue The prompt amelioration or complete removal of symptoms following treatment directed wholly to the heart has been illuminating

This particular group of cases has yielded clinical evidence of two cardinal and fundamental facts, namely

1 Even in what is probably the slightest recognizable degree of aortic insufficiency dilatation occurs to a sufficient extent to produce subjective symptoms and a definite and characteristic increase in the cardiac area without a clinically recognizable hypertrophy

2 With only a split second tone of extremely limited audibility and no definite murmur an adherence to the traditional disregard of subjective symptoms would prevent a correct diagnosis in the absence of marked dilatation Certain of these symptoms were unquestionably those of cardiac weakness

I may say that no examples of the normal heart of excessive size have ever come under my observation at post-mortem nor can I believe that the weight-differences established by the pathologist for normal hearts can result in an outline which exceeds the maximum percussion boundaries recently established orthodiagraphically by Dietlen On the other hand I find that many dilated hearts are regarded as normal in size because of a disregard of the law of proportionate weights, of the peculiarities of body structure and of the conformation of the individual

I have been deeply interested in the study of another group of patients showing predominant subjective manifestations together with clearly defined evidences of either cardiac dilatation or ready dilatability The condition seems to correspond to what Mackenzie calls the X disease His extended and clever description is precisely that of a common type of so-called 'passive neurasthenia," but the physical and mental characteristics are in all respects such as to permit one to replace the sign of the unknown quantity by the term 'chronic congenital asthenia," that composite ailment of which Berthold Stiller, of Budapest, has drawn so clear and vivid a picture In the absence of dilatation these patients have usually a misleadingly small and narrow low-lying heart (the *tropfenform Herz)* and there is usually an associated arterial hypoplasia and marked vasomotor instability

The heart-muscle and vessels are alike singularly deficient in tonus, and the readiness and frequency with which minor dilatation occurs, with or without murmurs of a peculiarly transitory and evanescent character is a most striking clinical phenomenon to which Stiller apparently has paid no attention These murmurs are systolic and may be mitral tricuspid or pulmonary in type, and the latter two are usually ascribed to anemia though in such cases they may and often do occur in its absence or tend to persist or recur after any existing initial anemia is relieved

These cases present diverse subjective symptoms many of which are directly dependent on the cardiac weakness and more or less continuous overstrain, as may be readily proved by properly directed treatment In addition they show a wealth of subjective symptoms resulting from their structural deficiencies, their chronic tendency to subnutrition and the congenital muscular weakness and relaxation, which as manifested by uterine displacements, loose kidneys, gastroptosis, kinks and the like, have afforded a large, though usually a thankless field for surgical enterprise

In this connection I venture to express the hope that "neurasthenia" as a descriptive name for a supposedly concrete ailment will soon drop out of medical literature, or be confined to the extremely few cases left without a more definite assignment under modern diagnostic methods It served a useful purpose as did the term "heart-failure' in the days of less accurate diagnosis, but of all names in the medical dictionary it seems to me to be at this time the most obscuring and misleading and least truly descriptive If we deduct the cases of demonstrable visceral lesions of incipient insanity, chronic congenital asthenia hyperthyroidism and larval syphilis from the 'neurasthenic group,' the remainder will closely approximate zero

Fortunately the "rest cure' so widely and effectively employed exactly suits the needs of the asthenic from the standpoint both of nutrition and of cardiac muscle tone as indeed it applies to a vast number of other chronic diseases

Such cases as are included in the two groups just described, namely those of early aortic incompetence and those of chronic congenital asthenia with weakened hearts seem to me to throw a flood of light on the subjective manifestations of cardiac insufficiency of the minor grades

It is a fundamental and damaging error to assume that one must await the onset of pulmonary or renal congestion hepatic engorgement marked dyspnea ascending edema and flagrant and obtrusive dilatation before feeling justified in active therapeutic interference in heart-disease Yet these are the signs of incompensation as given by every text book These minor symptoms represent the expression of extreme cardiac weakness and fortunately for the patient often serve at once as danger signals and emergency brakes, but they ought not to determine therapeutic initiative.

The history of any chronic lesion is rather one of adaptation than of true compensation. The nature, site and severity of the lesion varies widely in different affections, but each and all diminish the radius of cardiac response, i. e., they diminish cardiac reserve.

Crippling valvular lesions, progressive myocardial degenerations, sclerosis of the coronary arteries or of the entire vascular system, high arterial tension and the like, embarrass and hamper the intricate and delicate mechanism of the entire circulation and tend constantly or intermittently to force the heart to a degree both damaging and dangerous.

If one assumes as an example the production of aortic leakage, one finds primarily a dilatation of the left ventricle, limited and constantly resisted by muscle tonus and contractility, and usually by an increased frequency calculated to lessen the load per heart-beat. Hypertrophy follows and after a variable period, in young hearts at least, the increase of muscle and the dilatation limiting tonus establish a circulatory equilibrium with diminished field of cardiac response and constantly progressing damage in the vascular field, and we say that "the lesion is compensated." So wonderful is this adaptive change that for years a man may pursue a laborious occupation without serious breaks in this circulatory equilibrium, but he may and often does break down suddenly under some unusual physical strain no greater, less perhaps, than that of his daily labor, to the peculiar strains and vicissitudes of which cardiac and skeletal muscles alike have become trained and habituated. His cardiac muscle strength is temporarily increased but his reserve is impaired. Year by year the margin of relative safety for such patients diminishes under the effects of abnormal pressure, the toxins of fatigue disturbed metabolism, the constantly impaired and ever-diminishing coronary blood-supply, and the almost invariable progressive cardiovascular degeneration.

Certain decompensatory factors are common to all valvular and myocardial lesions and the chief of these are muscle-strain, diminishing tonus with increase of dilatation and dilatability, progressive fatigue and again the constant contraction of the field of cardiac response. It is incredible that we should receive no suggestive signals other than the obtrusive symptoms of the later stages of decompensation. Any muscle in the body may give rise to manifestations varying from mere subjective discomfort to agonizing pain when forced to continuous maximal labor under conditions of excessive strain and fatigue. We have the reports of forced marches, the records of various long-distance contests, as well as the histories of acute heart-strain in patients to attest this fact. Our clinical interest must then be chiefly directed to the lesser painful or distressing manifestations of cardiac fatigue and overstrain and the regions to which these may be referred.

Many other factors diminish the tonus and contractile power and in varying degree the other functions of the heart-muscle until accustomed use, and later mere living, involves serious overstrain. Long before this crisis is reached, from time to time the struggling heart cries out for relief. This cry varies somewhat in different lesions but may take the form of pain or find expression in mere discomfort, pressure, constriction, subjective dyspnea, a persistently quickened pulse, anorexia, disturbed sleep, bad dreams, an overwrought mental and nervous condition, lassitude, weakness or even syncopal attacks.

Alexander Lambert has recently directed attention to the work of Henry Head, Sherrington, Mackenzie and others which shows that despite the insensitiveness of the heart itself painful sensations having their source in cardiac embarrassment may be referred to the chest-wall, axilla, neck, shoulders, inner aspect of arm, epigastrium and even the right and left hypochondrium. The auricles refer their pain to the lower axilla and shoulders, the ventricles to the chest-wall, epigastrium, inner aspect of the upper arm, ulnar surface of the forearm and the wrist. *Pain from the ascending aorta may be referred to the entire neck, including the occiput.* Mackenzie reports a case of major angina in which the gums were painful.

With such a wide area of distribution for cardiac pain, and granting the logical assumption that various sensations of discomfort may substitute pain in cardiac overstrain and fatigue as in like conditions affecting any other muscle, we see the importance of many axillary, neck, shoulder, thoracic and upper abdominal referred pains or uncomfortable sensations such as are generally given the more obvious interpretation suggested by their surface relation to underlying tissues. Many a patient with chronic myocarditis or coronary sclerosis and a struggling heart has been confidently but vainly explored for gall-stones or gastric ulcer under a not unnatural misinterpretation of referred cardiac pain.

We must certainly revise our ideas also in relation to many of the less painful seizures and the minor discomforts occurring in the upper abdominal zone. *In the case of the elderly patient especially we should reverse the traditional rule, and instead of considering first the stomach when he complains of his heart, look rather to his heart when he complains of his stomach.*

The subjective symptoms of heart-disease are many and varied and few are peculiar to cardiac disease but *the fundamental factors in their interpretation are*: 1. The relation of their onset to concurrent or precedent physical exertion. 2. Their association with the lesser grades of dilatation. 3. Especially in the case of the middle-aged patients and to a less degree in younger persons, their relation to excitement or emotional strain. 4. Their response and that of the cardiac outline, when this is increased, to cardiac stimulation with or without physical rest or regulated exercise.

Variations in rhythm are often of great importance especially in persons above 30 years of age, but afford too large a field for present discussion. Auricular fibrillation, extrasystolic manifestations and various grades of heart-block are of chief importance. Vagus influences are readily tested by the appropriate use of atropin on the one hand or of digitalis on the other. A persistently rapid or abnormally slow pulse, and the pulse which varies abnormally on a change of posture are helpful elements in diagnosis. Subjective dyspnea, diurnal or nocturnal even in the milder types, is a striking symptom of great value frequently ascribed to hysteria and persistently increased respiratory frequency is frequently overlooked in the absence of any complaint of dyspnea. Indeed, slight and transient edema is by no means so strikingly objective as to shield the careless observer from serious error especially if, as in several ambulatory cases observed by me, it is present only over the calves of the legs.

A sense of lassitude, easily induced fatigue, unexplainable drowsiness, lack of concentration and sustained application, mental confusion, heaviness of the legs and the wading sensation, together with disturbed sleep and subjective gastric disturbances of the most varied kinds, are extremely common symptoms. In cases of insufficiency associated with high arterial tension, numbness and prickling of the lower extremities frequently occur, often being manifested only under the coincident increase of cardiac dilatation and increased arterial pressure, subsiding as these are relieved.

Harlow Brooks has shown both the rarity of classical angina pectoris and the remarkable frequency of embarrassing or crippling grades of coronary sclerosis.

I have been struck by the frequency with which relatively mild precordial and epigastric anxiety, constriction, subjective dyspnea and the like, have been associated with a fear and a sense of impending dissolution quite beyond that referable to simple nervousness, and believe that in the light of recent reports this element should always indicate a careful investigation of the heart and blood-vessels as pointing to a minor but genuine angina. Again and again an attack of "hysteria" proves to be a beautifully accurate miniature of angina pectoris, and "pseudo-angina" is one of the most misleading and misused terms in medicine.

Hair-splitting differential diagnosis of the various forms of myocardial degeneration and a tendency to greatly overuse the term "chronic myocarditis" are giving way to a more rational tendency to use the former term, not to attempt the impossible, and with a proper realization of the value and importance of the specific lesion, to concentrate on the question of functional efficiency.

We have long sought, but never found, a direct and simple test of cardiac sufficiency. Even modern instruments of precision fail to supply this need to a degree at all commensurate with the time and training necessary to their intelligent use. The muscle-antagonism test of Herz, Graupner's test or that of Katzenstein are alike uncertain and unreliable, but fortunately we may in most lesions detect cardiac weakness by the response of the subjective symptoms and the percussion area of the suspect to adequate doses of a cardiac stimulant with or without absolute rest.

As may readily be shown by *x*-ray control, serious error in skilfully applied percussion, though occasionally unavoidable, is far less frequent than is generally believed if one adheres to like conditions on the different occasions, outlines both borders, and substitutes a modern percussion method for the heavy flat-finger technic of former days.

In dilated hearts the shrinkage of outline is usually so marked and the lesser outline so well maintained under and following the therapeutic test as to be most illuminating, but as before stated many dilatations are overlooked by reason of the large variation accepted as within normal limits and too often applied without reference to the physical build of the individual.

One need hardly refer to the gross errors which occur when a variable landmark like the nipple replaces the measuring tape. Another aid is afforded by variations in the total daily urinary output, though this is too often misleading and requires careful control.

In respect to auscultation, one may venture to suggest the need of more careful attention to weak and impure sounds and abnormalities of accent, and a less exclusive concentration on actual murmurs.

PROPHYLAXIS

With relation to prophylaxis, much of the recent clinical and pathologic work is of extremely great value. Lesions of the aorta, aortic valves and the myocardium are far more commonly associated with syphilitic infection than we have formerly believed, which no doubt in large measure accounts for the relative rarity of aortic valvular lesions in childhood. It is evident also that the process is one of relatively early development as relating to the stage of the disease itself. Harlow Brooks, who has recently made an interesting report on cardiac syphilis, also emphasizes the extraordinary frequency with which a history of luetic infection is denied, as is proved by both autopsy findings and the results of the tests of Wassermann and Noguchi, now extended and simplified by the luetin test of the latter investigator. These facts emphasize the diagnostic and protective value of these tests, and the importance of prompt and intensive treatment.

Neither time nor space permits a general consideration of the prevention of arteriosclerosis, or of myocarditis in general, but I may say a word in relation to acute rheumatism and certain other infections producing endocarditis and myocarditis.

The onset and course of acute rheumatism have always suggested an acute infection of a modified septic type, and the relatively recent work of Poynton and Payne, Beattie, Ainley Walker, Beatson, Longcope and many other observers has shown that a diplostreptococcus may be quite constantly recovered from the subsynovial areolar tissue of the inflamed joints of rheumatic patients, grown in pure culture and passed through a series of susceptible young animals in which it consistently produces an acute arthritis. It is recovered somewhat rarely from the blood, and with difficulty from the joint exudate, in both of which fluids it seems promptly to be destroyed, and in spite of its tendency to diplococcus arrangement in culture mediums represents probably a specific streptococcus strain not yet clearly differentiated. During the same period many reports have appeared relating to the portals of infection in rheumatism, among which the contributions of D. J. Davis of Chicago are notable.

The intimate relationship between rheumatism and streptococcus infections of the tonsil, accessory sinuses and pharynx, seems to be definitely established not alone by the extraordinary frequency with which pure or nearly pure cultures of various strains of pathogenic streptococci occur in the depths of the tonsils of rheumatic patients, but also by the astonishing immunity to or relief from the disease following the complete, painstaking removal of all tonsillar tissue or the cure of other foci of infection.

Guerich advocates the removal of tonsils at any stage of an active rheumatism, and though we may consider this a too radical rule of action, we must admit that their extirpation whenever found diseased is indicated in all persons who show a rheumatic tendency or who have passed through an attack of the disease. Indeed, bearing in mind the early or primary involvement of these structures in diphtheria, influenza, scarlatina and other acute infections in which endocarditis and myocarditis frequently occur, it would seem that we are justified in placing tonsils in the same category with adenoids and suppurating accessory sinuses in relation to operative procedure. They are natural incubators and food depots for invading organisms and may appear perfectly normal on inspection even while they are breeding generation after generation of pathogenic organisms or, as is stated by Guerich and others, containing actual pus in considerable quantity.

With the careful investigations of tonsillar flora now in process by Rosenow and D. J. Davis of Chicago, the work that is being done by Schottmüller and others on endocarditis lenta and the *Streptococcus viridans,* and by Poynton and Payne on the flora of the periarticular tissue in rheumatism, we may hope to obtain more specific information of yet greater value in relation to the various strains of streptococci attacking the heart but even now we are fully justified in believing that early attention to the tonsillar field alone will serve to diminish greatly the incidence of heart-disease in both children and adults

Yet another practical point of value is to be found in the consideration of our treatment of acute rheumatism, diphtheria, scarlatina, influenza and indeed any affection associated with marked physical prostration In such cases I believe that the excessive weakness is ordinarily not one primarily or chiefly arising from or affecting the skeletal musculature, though this must of necessity be a factor, but rather in large degree the weakness of a poisoned myocardium In the presence of prostrating acute infections the cardiac muscle invariably shows the greater or less effect of circulating toxins at autopsy even though endocarditis or actual myocarditis be absent

The heart's intrinsic circulatory capacity is ten times that of the skeletal muscles It is an extraordinarily delicate and highly specialized tissue, and it must maintain constant activity under direct and disproportionate exposure to the toxins of disease Furthermore, auricular fibrillation, the lesser degrees of heart-block and extrasystolic irregularities occur with suggestive frequency in acute infection The skeletal muscles, on the other hand, are at rest, they receive a far less abundant blood-supply and in most instances of brief prostrating infections fail to show under dynamometric tests anything at all in accord with the subjective manifestations of exhaustion In many of these cases, carefully conducted percussion will reveal an abnormally increased cardiac outline especially in such persons as structurally fall under the head of chronic congenital asthenia Furthermore, one will often find even in the absence of profound anemia or actual endocarditis, not only transitory murmurs, but also weakness, undue sharpness and muffling or abnormal accentuation of the cardiac tones of variable persistence and duration

Many a case of persisting weakness and ultimate chronic degeneration of the myocardium dates its inception from the onset of such an attack and too prompt resumption of customary activities, and the need of prolonged cardiac rest after all prostrating acute infections is a matter of vital importance in prophylaxis too little regarded

CONCLUSIONS

In closing I desire to emphasize again the contentions on which this address is based

1 An early diagnosis of cardiac insufficiency is absolutely essential to the patient's welfare

2 Such early diagnosis necessitates a change in the general attitude of medical men with relation to the valuation of subjective symptoms and the determination of the symptomatic relationships of lesser cardiac dilatations

3 A large group of chronically diseased individuals usually classed as neurasthenics, while usually free from serious organic heart disease, are peculiarly lacking in heart-muscle tonus and possess extremely dilatable, symptom-producing hearts as a part of their fundamental and usually congenital defects in general bodily structure and function

4 So little basis now remains for the retention of the term neurasthenia as descriptive of a concrete disease, and such serious errors of omission result from its continued prominence in the field of chronic ailments that it should be dropped from the literature of medicine, or be given its true valuation under a proper terminology

5 The term "perfect compensation" in heart-disease is a misnomer and the pathologic events in such cases make it evident that there is a constant more or less gradual but progressive limitation of the field of cardiac response and periods must inevitably occur from time to time, long before the onset of emergent or gross symptoms when appropriate therapeutic measures will support and aid the embarrassed and laboring heart relieve suffering and prolong life

6 To make the symptoms of extreme cardiac exhaustion one's only justification for active therapy is both illogical and dangerous

7 The recent studies of the causative agents and portals of infection in acute rheumatism, a better knowledge of the nature and means of detection of syphilitic infection and the introduction of new agencies and better methods for the intensive treatment of lues make both the avoidance and permanent cure of these conditions easier, and indicate the possibility of greatly limiting the large group of myocardial and aortic lesions of which they are the causative factors

8 Chronic disease in general and cardiac disease in particular are granted far less critical attention and direct control than is properly due them

9 Chronic heart-disease, though incurable, is wonderfully responsive to intelligent and properly timed treatment and always benefited by such proper supervision and control as is indicated in the individual case and obtainable only through early diagnosis tactful disclosure and a well-balanced optimism

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THE TREATMENT OF DIPHTHERIA-CARRIERS BY OVERRIDING WITH STAPHYLOCOCCUS AUREUS *

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AND

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The practice of "overriding" the throats of chronic diphtheria-carriers with suspensions of *Staphylococcus aureus* was introduced by Schiotz[1] in 1909 He was led to the use of *Staphylococcus aureus* by the observation that a patient with a sore throat due to the staphylococcus did not contract diphtheria when exposed, and also that several convalescents failed to show positive diphtheria after an attack of staphylococcus sore throat He treated six cases with prompt disappearance of diphtheria bacilli in all of them

Page[2] in 1911, reported the successful use of staphylococcus in one case in which the bacilli had persisted in the throat for three months after clinical recovery

In 1911 Catlin Scott and Day[3] of Rockford Ill reported the successful use of staphylococcus in eight cases on the advice of Dr Harris of Chicago

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* Read at the Annual Meeting of the Medical Society of Wisconsin in Wausau May 21-24 1912

[1] Schiotz Ugeskr f Læger 1909 lxxi No 49 abstr in The Journal A M A Jan 29 1910 p 422

[2] Page H Arch Int Med Jan 15 1911

[3] Catlin S I Scott L C and Day D W The Journal A M A Oct 28 1911 p 1452

Lydia M. De Witt[4] has carried out an extensive series of experiments in animals. She reports that of thirty-two animals inoculated with diphtheria and afterward treated with a staphylococcus culture nine were apparently not influenced by the treatment, fourteen were worse, and nine better. De Witt concludes that there is no rational basis for treating diphtheria cases with *Staphylococcus aureus*. She reports also two cases of sore throat in which diphtheria developed, and in one gained and kept the ascendency. De Witt admits, however, that the animal experiments indicate that a certain percentage of acute cases may clear up more quickly under staphylococcus treatment than under ordinary antiseptic treatment.

These favorable reports induced us to try the method in a troublesome outbreak of diphtheria in the State Hospital at Mendota, the clinical report of which is given here by Dr. Lorenz.

During this epidemic carriers were found and were the source of considerable annoyance. The usual antiseptic methods of treating these cases were found ineffective and at the suggestion of Dr. Ravenel pure cultures of *Staphylococcus pyogenes aureus* were used. Various strains were tried though the results were the same irrespective of the strain used.

In the diagnoses of the cases here reported every effort was made to rule out the personal equation. For the most part cultures were examined by two of us in the laboratory. At our request Dr. Lorenz did not indicate which patients were receiving the staphylococcus spray and which not.

In all seventeen patients received this form of treatment. Three were carriers pure and simple, that is, they never showed clinical manifestations either local or constitutional. We will refer to this type of carrier as Class 1. Six patients showed clinical symptoms of diphtheria. The local signs ranged from congestion or hyperemia to distinct membrane formation. These patients had all received the routine local antisepsis but persisted as carriers long after convalescence had been established. We will refer to these as Class 2. In eight cases the staphylococcus spray was used early in the course of the diphtheria. In these instances no other form of local treatment was employed (with one exception). The treatment was begun immediately after the first positive or suspicious bacteriologic report had been received.

The results in Class 1 were uniformly good. In two cases negative reports were received after six applications of the spray. Three months later one of these patients again became a carrier and the reinfection was cured in the same manner. The third case did not clear up under the staphylococcus spray alone though after a combination of nasal and throat application negative cultural reports were received. In this instance nine combined applications were made three successive days while in the first two cases six applications sufficed to bring about a cure. These three patients were attendants on duty in the isolation ward and as previously mentioned never showed clinical manifestations of diphtheria.

The six patients referred to as carriers of the second class received the following treatment during the acute stage of the diphtheria: antitoxin in various amounts from 5,000 to 25,000 units, some by the intravenous method and others by deep muscular injections. The local treatment used was hot saline douches every four hours alternating with a spray of liquor antisepticus, liquor sodii boratis compositus (Dobell's solution), potassium permanganate solution, chlorin water or mercuric chlorid solution. In spite of this treatment the throats continued to show the diphtheria bacillus long after the patient was well, in one instance nine weeks. The average was seven weeks.

The local antiseptic treatment was discarded and the staphylococcus spray was substituted. Four of the cases cleared up within one week; in two the results were not so good. These exceptions can possibly be accounted for and a more detailed report is warranted.

REPORT OF CASES

CASE 1.—The patient, E. F., was first isolated owing to a congestive condition of the throat. The first bacteriologic report was "suspicious." The clinical manifestations rapidly improved following the administration of antitoxin and local antisepsis. The patient was discharged from quarantine after three consecutive negative cultures had been obtained. These cultures were made at two day intervals. One week after the last negative culture a fourth swab taken was reported as "suspicious" and the patient was again isolated. Staphylococcus spray was now employed and after four applications made at four hour intervals two negative reports were received. In this and the other cases no local treatment whatever was given during the time negative reports were being received. A third swab taken eight days after the first negative was diagnosed as "positive." The spray was then applied on the two succeeding days at four hour intervals and the bacteriologic reports following were "suspicious" and one day later "positive." The combined method of application was now used. In all twelve applications were thus made and following this procedure three negative reports were obtained over a period of two weeks. Ordinarily this was sufficient to warrant removal from isolation, yet a fourth swab was made and much to our surprise the report returned was "positive." The combined method was again resorted to and for six days applications were made at four hour intervals (three per day). This was followed by five negative cultures, though one of a few suspicious organisms was found between the second and third examinations.

The peculiar course is rather difficult of explanation. The recurrence of positive cultures after two and even three negative findings may have been due to reinfection, the patient having been on the diphtheria ward throughout this period. On the other hand the possibility of a focus of infection so situated in the nasopharynx as to prevent proper application of the spray must be considered. In all this patient received the staphylococcus spray six weeks before the repeatedly negative cultures were obtained.

CASE 2.—Patient H. O., of Class 2, is equally interesting and exceptional. This patient had a moderately severe clinical diphtheria. He received the routine treatment mentioned and was removed from the isolation ward after two negative reports had been received. Up to this time he had been in isolation fifty-two days. One month after his removal he showed a slightly inflamed condition of the tonsils. The bacteriologic report made was "positive." The patient was then returned to the diphtheria ward and treatment with the staphylococcus spray was started. At first the throat spray alone was used and the culture continued "positive." The combined method was then employed and after nine applications made on three succeeding days the first negative report was received. After a week of nontreatment the swab taken was reported as "positive." This fluctuation from negative to positive continued several times after three negatives had been obtained. In fact four negative and two [illegible] cultures were made from the throat during a period of [illegible] days when a return to positive occurred. At this point [illegible] of the tonsil was attempted [illegible] the tonsil with an [illegible] this procedure staphylococcus spray in extremely concentrated form was used, and finally a series of negative cultures was received.

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[4] DeWitt, Lydia M.: Jour. Infect. Dis., January, 191

In this case fifty days of treatment with staphylococcus spray elapsed before the patient was thought to be cured. In this instance it seems probable that the source of trouble lay in the large spongy tonsil, and it seems to illustrate the condition which has received special attention by Dr. Kretschmer,* namely, that the diphtheria bacilli are harbored in the crypts of the tonsil in many instances.

We give a history of several other cases as follows:

Case 3.—The patient, W. F. D., a student at the University of Wisconsin, became ill with diphtheria, Feb. 5, 1912. Antitoxin was administered and clinical recovery was prompt, but diphtheria bacilli persisted in the throat. On the twenty-sixth day Dr. H. M. Kay, the physician in charge, asked advice concerning the matter. We recommended to him the use of the staphylococcus spray. This was supplied to him in the form of a twelve-hour old culture in bouillon, the directions being to spray it thoroughly into the throat and nares. Thirty-six hours later a culture taken was negative to diphtheria, and five consecutive cultures remained negative. In this case the action of the staphylococcus spray was rapid and permanent.

Case 4.—X., a boy, aged 13, was taken out of school as he was found to be carrying an almost pure culture of Klebs-Loeffler bacilli. As the condition persisted for over two weeks, Dr. J. M. Furstman, health officer of LaCrosse, consulted the State Hygienic Laboratory, and cultures of the staphylococcus fifteen hours old were sent to him. The throat was sprayed every second day. At the third spraying, the number of diphtheria bacilli was very much decreased. The fourth culture also showed diphtheria bacilli, but four subsequent cultures remained negative.

Case 5.—In a factory in the city of LaCrosse, owing to an outbreak of diphtheria, the throats of approximately 350 operatives were examined. Six carriers were found and isolated. Five of these cleared up under ordinary treatment within a week. The diphtheria bacilli persisted in the sixth patient, a woman aged 19. Dr. Furstman began the use of the staphylococcus spray, using it, however, only every second day. Two cultures from the throat after the beginning of the spray were positive, but after that all cultures taken remained negative.

RESULTS OF USING THE SPRAY

The use of the staphylococcus spray early in the course of diphtheria was tried in eight cases. Each patient received antitoxin, though locally no treatment other than the staphylococcus was used (except in one case). In four of these cases the results were very good, that is, negative cultures were obtained within one week and after the use of four to eight applications of the spray. The duration of the entire quarantine in these cases was from six to fourteen days. Two cases were clinically typical while two were mild, the local manifestations being simply a congestion of moderate severity.

In three cases the results were fair. Almost invariably after six or eight applications were made the first swab taken would be negative. In several instances this negative finding was repeated only to be followed by a positive. The duration of suspicious or positive reports in these three cases was twenty, twenty-two, and thirty-six days respectively.

One case was mild; there was no membrane and very slight constitutional reaction. The throat symptoms cleared up within a few days after the administration of antitoxin though the cultural reports continued positive. Frequently two and even three consecutive cultures would be negative, and the next positive. On one occasion the throat continued negative for nine days when a return to positive occurred. At this point the staphylococcus spray was abandoned and a 1:2,000 solution of mercuric chlorid was used. Six applications were made, but a culture taken was reported as "positive, almost pure culture." The former treatment was then resumed and finally the case cleared up. The total duration was thirty-nine days.

In the last series of cases the staphylococcus spray was not used until the first swab had been reported on, while the antitoxin was usually given at the first indication of any throat involvement, irrespective of its severity; in fact, many patients had had immunizing doses. The result was that local signs of involvement had in most instances disappeared by the time the spray was used. In other words, no effect on local manifestations of diphtheria was observed following the use of the staphylococcus spray. In those cases in which membrane was present the spray was not used until after the membrane had separated.

The method of employment was arrived at in a rather tentative manner. Our early timidity and caution, judging from subsequent experience, was unwarranted. Over 200 applications were made and the few exceedingly mild conditions attributable to staphylococcic infection would indicate that the method is essentially a safe procedure.

A combined nasal and throat spray is advised to be given at four-hour intervals on two succeeding days, the first swab for examination should be made the third day.

The preparation used is a fresh suspension of the *Staphylococcus pyogenes aureus* in normal saline solution or a bouillon culture twelve hours old. An effort was made to keep the spray at a temperature of about 96 F. The application itself was made first into the pharynx, the spray being directed over the uvula, each tonsil and the posterior wall of the pharynx. Following this the application was made into each nostril. The amount used was sufficient to produce a "dripping-wet" condition of the pharynx and the nasal cavities were sprayed until as one patient expressed it, "I can feel it run down the back of my throat."

The untoward symptoms attributable to staphylococcic infection can practically be ignored. Three patients developed a coryza and one an exceedingly mild laryngitis, while two developed small furuncles at the tip of the nose. Other than these trivial conditions no complications or sequelæ developed in any of the cases treated.

In the last series of cases it seems that better results were obtained in those patients treated with the staphylococcus spray than in those treated by the ordinary antiseptic application. With one exception no other form of local treatment was used. Consequently, we feel justified in attributing the results entirely to the use of the staphylococcus spray.

The variability of results in the two classes of carriers arbitrarily referred to as Class 1 and Class 2 can possibly be explained on the following ground: In the first class it is presumed that the location of the diphtheria bacilli is superficial, the intact mucous membrane, or immunity of the individual, or both, preventing propagation and systemic infection, and the spray can come into direct contact with the bacilli. The less successful termination in Class 2 may be caused by the less accessible position of the diphtheria bacilli. Those superficially located are probably acted on as indicated by the fact that one or more negative cultures immediately following the use of the staphylococcus spray are almost always obtained The later "positive" findings are probably due to the bacilli deep in the glandular crypts, which are possibly protected by plugs of mucus or detritus

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* Kretschmer: quoted by [illegible], John. Prog. Med., March, 1912.

CONCLUSIONS

1 Pure cultures of *Staphylococcus pyogenes aureus* sprayed into the throat and nasal cavity will cause a disappearance of diphtheria bacilli

2 The above-described method of treatment is most effective in carriers of the first class

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PNEUMOCOCCUS INFECTION AND IMMUNITY *

RUFUS COLE M D

NEW YORK

During the past few years there has occurred a revival of interest in the study of the nature of infection with the pneumococcus It will be impossible to review all the discoveries of interest and importance that have been made The intention is to confine the present discussion mainly to certain observations made by my colleagues and associates and myself, which seem to have some value in enabling us to obtain a clearer conception of the process in pneumonia Certain of the hypotheses advanced must be considered to be purely tentative and further work may show that different explanations are the correct ones

Biologically as well as clinically the course of lobar pneumonia consists of these phases First, there occurs the infection and onset of the symptoms, which events may or may not be simultaneous second the clinical disease itself or the intoxication, and third, the recovery or immunization, using the latter word in a broad sense as signifying the onset of a refractory state, whether this be insusceptibility or resistance to the infection or to the intoxication

THE ONSET OF PNEUMONIA

In the first place, why does a person contract pneumonia? Is it merely that a pneumococcus, a normal inhabitant of the mouth, possibly riding on a drop of moisture, is accidentally carried into the healthy bronchus, and, after being tossed backward and forward on air currents finally settles on the mucous membrane of one of the bronchial branches begins at once to multiply and so induces the disease? The disease, according to this view, must be considered purely as an accident due to the pneumococcus reaching the lung It hardly seems possible that this simple explanation can be the correct one It is quite probable that pneumococci normally invade the lung in small numbers, at least occasionally However this may be, the fact is established that in pneumonia the pneumococci are in the lung and multiply there, which is not normally the case The usual explanation of this occurrence is either that the pneumococci are more virulent than usual, or that the resistance of the host is lowered

Much work has been done in order to determine whether or not pneumococci obtained from patients with pneumonia are more virulent for animals than those obtained from normal persons This is an extremely difficult problem to solve, and it is impossible to review all the evidence in regard to this point An observation made lately, however seems to have a bearing on the important question as to whether or not pneumococci of low virulence may be responsible for the onset of pneumonia In making cultures from the blood of pneumonia patients during the past year we have tested the virulence of all the organisms obtained Most of the organisms so cultivated have been of high virulence for mice and rabbits, but in at least two instances organisms of extremely low virulence have been obtained While it is possible that in these cases the organisms may have lost their virulence in the body we know from experiments that exaltation of the virulence of organisms when grown in the animal body is the rule The experiments of Meltzer and his associates which I shall mention shortly, also establish the fact that in dogs, at least, pneumonia may be induced by organisms of low virulence

That a decreased general resistance on the part of the body is present and is responsible for the onset of the pneumonia is possible, but at present the experimental evidence in favor of this view is not convincing

We have experimental evidence to support the view that the onset of pneumonia occurs because there is a changed condition in the lung which permits pneumococci to grow there Meltzer, Lamar and Wollstein have elaborated a technic by means of which it is possible to produce, uniformly and constantly, in dogs, lesions in the lungs which closely resemble, if they are not identical with, lesions found in the lungs of men dying from acute lobar pneumonia The method consists in the direct injection of quite large amounts of the culture fluid through a catheter inserted into the bronchus It is a most important fact that these lesions have been produced, not only with organisms having high virulence for rabbits and mice, but also with pneumococci having practically no virulence for these animals A second important point is that in order to produce these lesions, quite large amounts of culture fluid must be injected, and this must be blown into the finer air-passages, probably, as Meltzer has pointed out, so as to occlude them This experimental work permits a new conception of the onset of pneumonia What may first occur in pneumonia is an exudate which may be entirely non-specific in character and may be dependent on circulatory changes due to cold trauma, etc The smaller bronchioles being occluded, a true cavity is formed The lining of the involved air sacs no longer forms a part of the surface of the body but lines a true cavity filled with fluid Pneumococci, being the organisms most commonly present, begin to grow and change the character of the fluid so that it is irritating An observation by Gillespie shows that the reactions induced by the growth of pneumococci may be quite different, depending on whether free oxygen be present or not When pneumococci are grown on the surface of serum agar directly in contact with the oxygen of the air, the medium is not clouded or only to a slight extent Probably little acid is produced When however they are grown in the depths of the medium so that no air comes in contact there occurs a marked clouding of the medium

There is much evidence against the old view that the lesions of lobar pneumonia begin uniformly throughout an entire lobe Clinical evid[illegible] [illegible] against this Moreover [illegible] dying of lobar constantly going on. The extension is not uniform, but is patchy and lobular. The classical description of the lesion of lobar pneumonia in an exudative stage, a stage of red hepatization and one of gray hepatization, is responsible for this old conception. Supported by all these observations, we may conceive that the pneumococcus is not the first cause of pneumonia, but that pneumonia probably arises because in a small portion of the lung a non-specific exudation occurs, and later the pneumococci grow in this and produce irritating substances. From this small focus, or from a few or many small foci, extension occurs until the entire lobe is involved. As the pleura forms a natural barrier to extension, the process tends to become lobar.

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* Read in the Symposium on Recent Advances in Our Knowledge of the Acute Infections in the Section on Pathology and Physiology of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June, 1912

THE CLINICAL DISEASE

The clinical features of pneumonia are those of an acute intoxication. The pulmonary changes are not essential to the condition since pneumococcus septicemia, entirely apart from lung involvement, may exist. Moreover, severe symptoms may arise when the pulmonary lesions are comparatively slight, though this is not usually the case. We have been much impressed with the fact that extension of the local process is associated with a continuation and increase of the symptoms, so that it seems improbable that the general symptoms are entirely independent of the extent of the local lesions. The most severe symptoms, however, arise when instead of the process being entirely a local one, a general infection supervenes.

There have been several theories to explain the intoxication. It has been suggested that it may be due to the absorption of the products of digestion of the local exudate. But we know that the patient may be free of symptoms when this process is most active, namely, following the crisis. So far, all attempts to discover a toxin in the culture fluids of pneumococci have been unsuccessful. But it is possible that the metabolic products of the growth of pneumococci within the body are different from those formed when the organisms are grown in the test-tube. To test this point, rabbits were profoundly infected with pneumococci. Just before death they were bled, the serum was passed through a Berkefeld filter and the filtrate was then injected into a second series of rabbits. No signs of intoxication could be detected. It is well known that pneumococci, when grown in a medium containing carbohydrate, produce acid, and it is possible also that by the growth of the organism in the body the normal metabolism may be so altered that the normal reaction of the body tissues may be changed. Complete metabolic studies and studies of the oxygen and carbon dioxid content of the blood carried on by Peabody have not tended to support this point of view. A mild grade of acidosis occurs in all febrile conditions, but the evidence seems to indicate that the symptoms in pneumonia represent more than an acidosis.

In our experimentation we have turned to the isolation of toxic substances directly from the bodies of the bacteria. Years ago Pfeiffer showed that the killed bodies of certain bacteria are toxic when injected in considerable amounts. To these so-called endotoxic substances have been loosely ascribed the symptoms in a large number of infectious diseases. Pneumococci, when killed by heat, have very little toxicity. It has been shown by Friedberger, however, that if bacteria are first treated with immune serum, then centrifugalized, and these so-called sensitized bacteria are then treated for a number of hours with serum containing complement at 37 C., a change, supposedly digestive, occurs and the resulting extract is toxic. Owing to the fact that the death resulting from the injection of this extract into guinea-pigs is like that seen in anaphylactic death, Friedberger gave to this substance the name "anaphylatoxin." He thinks that the substances in question are identical with those producing death in anaphylactic shock following the second injection of horse serum. Based on this experiment, Friedberger and others have developed a theory of intoxication in the various infectious diseases, namely, that the bacteria growing in the body stimulate the production of antibodies, and that these sensitize the bacteria, which are then acted on by the complement, and the intoxicating substances result.

We, as well as others, have repeated these experiments with pneumococci and have found them correct, but differences of opinion exist as to their interpretation. It has been shown that under certain circumstances similar results may be obtained by the action of normal serum on the bacteria without previous treatment with immune serum. Dold and also Rosenow have shown that if bacteria are merely allowed to stand in salt solution for from twenty-four to forty-eight hours, so as to undergo what has been termed autolysis, the resulting extract is toxic also. We have also repeated these experiments with pneumococci, injecting the extracts into a large number of guinea-pigs, and have found that under certain circumstances such extracts are toxic, but that their action is inconstant and that it is extremely difficult to determine the exact conditions under which such extracts will be uniformly toxic. Instead of dying acutely, many of the animals die in from three to eight hours, and at autopsy marked hemorrhages are found in the cecum and stomach, and punctate focal hemorrhages are present in the lungs. Based on the experimental production of toxic autolytic extracts, Rosenow has formulated a theory of virulence. He states that virulent pneumococci autolyze readily and set free the toxic substance, non-virulent ones do not. Therefore virulence depends on the readiness with which pneumococci autolyze. We do not feel that the matter is as simple as this. While it is true in general that the more virulent pneumococci do autolyze more readily, yet these two properties, virulence and ability to autolyze, do not run parallel. Typical pneumococci, in our experience, always autolyze, whether they possess high virulence or not. Moreover, if a typical pneumococcus is allowed to grow on artificial culture medium until it has lost its virulence, it still continues to autolyze.

In our efforts to obtain these toxic substances more constantly, in order that more might be learned of their nature, we tried a large number of procedures which need not be mentioned in detail, but finally tried dissolving the bacterial bodies in a dilute solution of bile salts. It is well known that pneumococci are readily soluble in these substances. Much to our surprise, we found that such a solution of pneumococci in bile salts is highly toxic, killing guinea-pigs when injected intravenously within a few minutes. In the experiments the pneumococci were grown in bouillon, washed once in physiologic salt solution, and made into an emulsion in as small an amount of salt solution as possible. The latter procedure is due to the experimental observation that the solubility of pneumococci in bile solutions is dependent on the concentration of the bile in the solution, and not on the relation of the number of pneumococci to the amount of bile present. After solution has occurred, the dilution may then be made to any degree desired. In the experiments a 2 per cent. solution of sodium cholate has been employed, 0.2 c.c. of which is sufficient to dissolve the bacteria from 100 c.c. of bouillon culture, if the bacterial emulsion be sufficiently concentrated. Many times the amount of sodium cholate used for the single injection may be injected into a normal animal without producing symptoms. It is necessary to use considerable amounts of the dissolved bacterial substance, but not more than needs to be employed in producing an active amount of Friedberger's so-called anaphylatoxin, or in producing a lethal dose of the so-called autolytic extract. Not only is this solution toxic for guinea-pigs but it also produces acute death in rabbits when injected in proper amounts. The symptoms produced in rabbits are exactly like those described by Auer as occurring in acute anaphylactic shock in rabbits.

It does not seem important to insist on the relation of the toxic substance to anaphylaxis except in connection with the fact that this toxic substance may be produced by allowing the mixture containing bacteria and bile salts to remain at 37 C. for as short a time as ten minutes, or on the ice at 4 C. for thirty minutes. It is generally accepted at the present time that the toxic substance responsible for acute anaphylactic shock is a product arising from the splitting of the protein. If we admit that the intoxication arising from the injection of the bacteria treated in these various ways is identical with that in anaphylactic shock, we must consider that some other explanation of the nature of the intoxicating substance in anaphylaxis must be probable, for it seems hardly possible that a digestive process could be effectual, acting at such temperatures in such short spaces of time. It would seem more likely that the substances concerned are preformed in the bodies of the bacteria and are set free by the solution of the bacterial wall. It would thus seem that in this instance the conception of Pfeiffer of an endotoxin is more likely to be correct than the present conception that such substances are digestive products. In any case, an active poison may now be readily and constantly produced from the bodies of pneumococci. It may or may not be that responsible for the symptoms in pneumonia. This substance is labile, being destroyed at 60 C. for one hour. It not only produces acute death in rabbits and guinea-pigs, but by regulating the dose, death may be induced at different intervals. In the less acute death hemorrhages into the peritoneum are common, frequently there is an acute nephritis, and the liver is pale.

MODE OF RECOVERY

The third problem in pneumonia relates to the outcome of the disease. It would seem that in pneumonia, with its sudden crisis — one of the most startling and dramatic events that confront the physician — an ideal opportunity would be offered to learn the nature of the process of recovery, but up to the present little evidence as to the nature of crisis has been accumulated.

It has been thought by some that the crisis is only the general manifestation of the onset of resolution. The theory supposes that in the consolidated lung absorption is constantly taking place, that the exudate is under tension, and that when there has been a sufficient setting free of ferment by the breaking down of leukocytes to induce lysis, tension is relieved, absorption stops and the symptoms disappear. Instead of the surgeon inserting a knife, Nature injects a ferment. This is a fascinating theory, but has little to support it. The crisis often occurs before any signs of resolution may be discovered, indeed resolution may occur long after all symptoms have disappeared.

In case the toxic substance previously discussed does bear some close relation to that involved in the production of acute anaphylactic shock, it is conceivable that the crisis may be merely the onset of a refractory state analogous to that seen after acute shock. As we are not yet in a position to draw any such conclusion, this is offered merely as a suggestion.

Naturally the main attempt to explain the crisis as well as recovery by lysis has consisted in the attempt to demonstrate antibodies in the blood-serum. So far the attempt to demonstrate an increase of the ordinary bactericidal substances which act in conjunction with complement have been unsuccessful. Attempts have been made, by combining leukocytes and serum, to show an increase of bactericidal or possibly phagocytic power, but these studies are not free from objection. Most of them have been made with organisms of low virulence. In the experiments in which plating methods were employed the possibility of agglutination of the cocci has not been excluded. The experiments of Neufeld are of more importance as showing an increase in immune substances in the blood of patients following recovery from pneumonia. These results were obtained by testing the protective power of the serum for mice against a known lethal dose of pneumococci. He was able to show that while normal human serum had no such protective action, that obtained from patients following the crisis did have such an action. Certain writers, as Strauss and Seligmann and Klopstock, have not confirmed these results.

During the past year Dochez has studied the blood of patients suffering from pneumonia to settle this point and has obtained results which, in general, confirm those of Neufeld. The technic of the experiments was as follows: Specimens of blood were obtained at frequent intervals during the course of the disease and also at the time of crisis and during recovery. These specimens were all kept on ice until the final specimen was obtained. Then on the same day the protective power of all these samples of serum was tested by mixing constant amounts with varying doses of pneumococci and injecting the mixtures into mice. A large number of mice were required, as many as 100 for a single experiment. The organisms used in most cases were those obtained from the patient whose serum was being tested. If they were not virulent when isolated they were rendered so by passage through animals. The serum from fourteen cases was studied in this way. In one case the serum two days before crisis showed no protective power. Three hours after the crisis 0.2 c.c. of the serum protected a mouse against 0.0001 c.c. of the culture. In this case 0.000001 c.c. of the culture uniformly killed when given alone or when mixed with the serum obtained before the crisis. The serum obtained two days after the crisis protected a mouse against 0.001 c.c. of the culture. Serum obtained seven days after the crisis showed no protective power.

If this were a constant finding one might conclude that the development of protective immune bodies in the blood of the patient with pneumonia was the cause of crisis, or at least that the crisis was associated with such a change, but this development of immune bodies in the blood serum cannot be demonstrated in all cases. In fact, among the fourteen cases studied no other showed such a typical curve as this. In certain cases the appearance of immune [illegible] until several days after the crisis [illegible] appearance of immune bodies could be demonstrated. In the majority of cases, however, there occurred an increase in the immune bodies of the blood at or about the time of crisis, and this increase usually persisted for over a week or ten days. The irregular results obtained make it seem hardly possible that the crisis is directly dependent on this one factor alone. From clinical observation it would seem much more likely that the crisis represents a kind of neutralization of the intoxication rather than a destruction of the bacteria existing within the body.

It is nevertheless true that the presence of bacteria in the blood apparently bears some relation to the outcome, for while in the patients that recover the bacteria are absent, or present in small numbers in the circulating blood, in the cases that go on to a fatal termination bacteria are usually present in large numbers. Moreover, while the virulence of the organisms concerned seems to play but a slight rôle in the onset of the disease this factor is apparently an important one in the outcome. In practically all cases in which large numbers of highly virulent organisms were present in the circulating blood, death resulted. On the other hand, in several cases in which the organisms in the circulation were of low virulence, recovery ensued. It therefore seems probable that while the crisis may result from a neutralization of the intoxication the possibility of this phenomenon is dependent on the power of the body to overcome the vegetative functions of the bacteria. At the present time at least, our only definition of virulence as regards pneumococcus must be power to vegetate within the body. In other words, the virulent organism has become adapted to this environment. This adaptation is apparently a property both easily acquired and easily lost by the pneumococcus. It is evident then, that the crisis in pneumonia is still an obscure phenomenon, and at the present time it cannot be stated positively whether it represents a destruction of the bacteria, a neutralization of the poison, a kind of anaphylactic shock, or a combination of all these phenomena.

ACTION OF IMMUNE SERUM

Finally, we may briefly consider the newer work concerning specific therapy, especially treatment with immune serum. Observers who have attempted to produce active immunity to pneumococci have usually found little difficulty in doing so. By the injection of living cultures intravenously in horses, as the method was first described by Neufeld, we have succeeded in so immunizing a horse that it will stand as much as 2,500 c.c. of the virulent culture. But while many observers have succeeded in producing an efficient active immunity in various animals, more difficulty has been encountered in producing passive immunity, especially in producing a serum having curative value. When injected together with the culture, the serum which we have employed has been so active that 0.2 c.c. will protect a mouse against 1 c.c. of a culture of which 0.000001 c.c. kills—a protection against 1,000,000 lethal doses, but if the lethal dose of pneumococci is given first and the serum injected only a few hours later, it is difficult to protect, no matter how much serum is injected. This is the stumbling-block in the whole question of treatment with immune serum. Various explanations have been offered. Neufeld, who has done the most valuable work lately in connection with this question, has endeavored to show that the failure to cure is due to the fact that sufficient serum is not employed. He bases this view on certain experiments which he has performed, which show that as one injects mixtures of serum and bacteria into a series of mice, gradually reducing both in the same proportion, a point is reached where the small amount of serum injected fails to be efficacious. He therefore thinks that the reason why our immune serums have failed to cure is that too small amounts, in proportion to the body weight, have been employed.

Dochez has performed experiments which seem to indicate that there may be another explanation for the failure of immune serums to be curative. He has studied the results obtained by injecting mixtures of immune serum and culture into a series of mice, not only decreasing the amounts of serum and bacteria in the same proportion, but also gradually increasing the amount of bacteria injected and he finds that as one increases the amount of bacteria it is necessary to inject proportionately more and more of the serum in order to protect, and that finally a point is reached where no amount of serum, however great, is sufficient to save the animal. This seems to indicate that, in addition to the presence of immune bodies contained in the serum administered, it is necessary for the body of the infected animal to play an active part, and that where the infection is very severe the body is unable to react to a sufficient degree.

In pneumonia we are dealing not with a mild infection but with a most severe one, in which the body contains an enormous number of organisms. It seems probable that the reason the serum is not efficacious in these cases is not that a sufficient amount of immune body is not being given, but that the body is not able to complete the action of the immune substance. If we are to make such serums efficacious in treatment, we must find some method of increasing this completing action of the body. Since we apparently do this in active immunization, we may be able to obtain curative effects by combining active immunization, that is, vaccination, with the supplying of immune bodies—the administration of immune serum. It becomes more and more evident that such methods should be carefully worked out on animals before being applied to patients. By careful animal experimentation along this line it is quite possible that favorable results may be obtained even with the resources we now possess.

There is one further point in regard to the use of immune serums which should be borne in mind. Our experiments with blood-cultures have shown that our univalent serum, that is, one produced by the injection of a single strain, has been efficacious in protecting animals against about only 40 per cent. of the cultures obtained from the circulating blood of patients. This means that at least 60 per cent. of cases are due to organisms other than those of the type strain. Whether a polyvalent serum will enable us to overcome this factor is not certain.

In regard to the results of the practical application of specific forms of treatment, but little need be said at the present time, as so far the value of none of them has been sufficiently established. Interesting observations on the specific treatment of experimental pneumococcus infections by means of mixtures of soap, serum and boracic acid have been made by Lamar. This work is based on sound experimental evidence, but so far has not received practical application. Leukocytic extracts, vaccines and watery extracts of bacteria have been employed as therapeutic measures. Their exact value still remains to be determined. Moreover, Morgenroth has prepared a derivative of quinin, ethyl-hydrocuprein-hydrochlorate, which is said to have curative value in experimental infections and has already received some clinical study Unfortunately, several cases of amblyopia have resulted from its use

This report and brief review of some of the work that has been done in connection with pneumonia during the past few years shows that there is considerable interest in the subject and that much work is being done, and while it is difficult at the present time to see exactly where the solution of the whole problem will lie, nevertheless the outlook is not without hope for arriving at a better understanding of the nature of the process, and possibly for obtaining a specific cure

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ABSTRACT OF DISCUSSION

Dr S J Meltzer New York Medicine has been and is still dominated by the anatomic view of disease The pathologic changes found after death from some disease are generally identified with the disease itself But these anatomic changes might be only a consequence of the disease, or what is more important, they might be the result of the body's attempt to defend itself against disease or an attempt to repair the injuries caused by the disease When a patient succumbs to pneumonia, at autopsy we find anatomic changes in the lungs, they are partly consolidated and inflamed, they show red or gray hepatization, and we generally say that the patient died from inflammation of the lungs But these phenomena may be looked on from another point of view a view which I am inclined to advocate on the basis of some experimental observations The essential features of inflammation are hyperemia and exudation The hyperemia assists in the exudation of serum and cells It is now generally assumed that the mission of the exudate is to defend the body against the invading infection The leukocytes destroy the bacteria which are prepared for this end by the serum the leukocytic and serum enzymes antagonize in some way the bacterial toxins and the lymphocytes digest the débris of the coagulated serum the fibrin and the broken down leukocytes In short, inflammation is a defense against disease and not the disease itself Does the inflammation of the lungs have another meaning? It is plausible to assume that here, too, the anatomic changes present simply defensive reactions of the lung tissue against the invading pathogenic organisms In many instances, however, the defenses fail and large numbers of the virulent bacteria succeed in escaping from the exudate and entering into the circulation at a period when the blood has lost a great deal of its defensive ammunition, this leads often to a fatal issue which explains why Dr Cole and others could easily find bacteria in the blood only in fatal cases of pneumonia In experiments made by Lamar and myself by intrabronchial insufflation of cultures of a very virulent pneumococcus typical pneumonic lesions were produced in every instance The experiments gave a mortality of 16 per cent and bacteriemia was present only in the fatal cases In recent experiments which Dr Wollstein and I have made with a non virulent pneumococcus again typical consolidations of the lungs were obtained but with no mortality and no bacteriemia Apparently the anatomic changes in pneumonia are not the cause of death Neither do they present the essential features of the disease On the contrary they are manifestations of the body's fight against the disease

Dr V C Vaughan Ann Arbor Mich Under ordinary conditions we are protected against infection by the proteolytic ferments in our bodies These dissolve the bacteria with which we become inoculated The pneumococcus is constantly with us When for any reason our tissues fail to furnish in an active form the ferment that splits up the pneumococcus it grows uninterruptedly and pneumonia results Of the protective proteolytic ferments with which our bodies are furnished there are two kinds One is non specific but there are many reasons for believing that this is the one that protects ordinarily against pneumonia Increased resistance to pneumonia is easily induced experimentally in the lower animals

Dr. William D Robinson, Philadelphia The condition of toxemia in the alveoli precedes that in the bronchioles very often for days Is Dr Cole sure that the pneumonia began in the bronchioles and was found only secondarily in the alveoli? I have found record of the presence of the pneumococcus in the very clear serous exudate in the alveoli Afterward these organisms are apt to be found multiplied but it seems to me that something was at work previous to the multiplication of the germs causing pneumonia that made it go into the alveoli, pus from there causing infection before the invasion of the pneumococci from the blood current

Almost every one of the cocci that produces inflammatory conditions, except the gonococcus can produce pneumonia The pneumococci have produced everything that the streptococci and other organisms can produce If there is anything in that idea worthy of consideration it might be worth while for some one with capacity and ability to make researches in this direction We often have intoxications from the pneumococci resulting in the picture seen in blood invasion without any lung involvement Eliminate dysentery and we evidently have mixed infections in very many of our cases and a great many pneumonias without any pneumococci entering into them It is impossible to separate these from pneumococcus pneumonia through the general symptoms The only way to differentiate is by a study of the bacteria themselves

Dr E C Rosenow Chicago The endotoxin theory of Pfeiffer has interested me very much The experiments cited as proof that certain bacteria contain endotoxin show that his animals died in from four to twelve and twenty four hours after the injection was made In repeating these experiments I find that when I inject unautolyzed suspensions or extracts of pneumococci into guinea pigs they die in from eight to twenty four hours depending on the size of the dose At a certain period after the suspension or extracts have been kept at 37 C the toxicity is greatly increased and the guinea pigs die in two or three minutes from bronchial spasm, whereas later they show no immediate or subsequent symptoms These changes have been proved to be associated with proteolysis Suspensions of mechanically broken up pneumococci made by grinding in a mortar and when autolysis is prevented by cold kill in from six to twenty four hours, but the animals show no immediate symptoms When these suspensions are placed at 37 C the appearance and disappearance of the toxic substance follows the same rule as in the case of pneumococci which are not previously broken up From these experiments it would seem that in the case of pneumococci at least the toxic material is largely made during their disintegration whether *in vivo* or *in vitro* By testing the effects of extracts in sodium chlorid solution of consolidated lungs and other pneumococcus exudates I have found that similar substances are formed *in vivo* When the freshly washed material from these exudates is suspended in sodium chlorid solution and placed at 37 C the toxic substances appear in solution and then disappear just as do those in suspensions of pneumococci Since the toxicity disappears after a time in the suspensions of pneumococci to which bile salts are added it is apparent that the changes which take place in each case must be of a similar nature In the case of autolysis in extracts of pneumococci and in the action of normal and immune serum on pneumococcus extracts I have proved that the appearance and disappearance of the toxic substance is associated with proteolysis While protein splitting here and *in vivo* may not be the whole factor I feel that the evidence is strong that in pneumonia for instance proteolysis plays an important role in the destruction of toxic substances which may be specific to a certain degree and non specific to another degree Indeed Dr Dick has shown that at the time of crisis or soon after the specific proteolytic power against pneumococcus protein of the serum is definitely increased

Dr A D Hirschfelder Baltimore My father Prof J O Hirschfelder of San Francisco immunized rabbits by means of a pancreatic solution of pneumococci digested with pancreatin in an alkaline solution for ab [illegible] Th thus was able completely to dissolve the pneumococci He then acidulated slightly with hydrochloric acid, and filtered with a Pasteur filter The rabbits injected in this way with 35 to 40 c c of this solution acquired immunity for a period of from six to twenty days In contrast to the bile solution that Dr Rosenow and Dr Cole have spoken of, this vaccine was able to retain its power to immunize for at least three months after its preparation, at room temperature, when the laboratory temperature varied from 45 to 65 F The serum of a dog immunized with this dissolved pneumococcus was capable of protecting a rabbit against an ordinarily fatal dose

Some experiments performed a couple of years ago by Dr Ralph Major and Dr Douglas Morse at Johns Hopkins, as a medical thesis for the medical clinic and intended for publication along with other theses of fourth year students, about two years ago, were undertaken at my suggestion, with a view to determining whether the crisis in pneumonia is an anaphylactic phenomenon as Dr Anderson had suggested A cutaneous reaction was produced by the use of a very concentrated solution of pneumococci, which they were allowed to autolyze A small number of cases (about five) were experimented on, the tests that were made before the crisis set in were all negative There was no local reaction, any more than appeared in the controls In the tests made at the time of and after the crisis, a peculiar papular reaction, which somewhat resembled the luetin reaction of Dr Noguchi but which consisted in the development of a much harder and more horny papule took place There was in some cases always a certain zone of erythema in the positive cases but it did not bear a striking resemblance to the von Pirquet tuberculin reaction On the other hand, in the patients who died there was no reaction whatever At the time of the crisis there was no appearance of a large or an exclusive anaphylactic reaction that differed from the tests made on days subsequent to the crisis

Dr Rufus Cole, New York If, as Dr Vaughan and Dr Rosenow maintain the toxic effects of the bacterial extracts are due to the presence of products arising from the digestion of the bacterial protein we must agree that in the case of bile treated bacteria the splitting must be of an unusual kind, not comparable with that due to the action of ferments, like pepsin, since the bile extracts may become toxic within one half hour in the ice chest and we know of no proteolytic ferments that act with such rapidity at low temperature It is possible that the splitting is of a different and unknown kind or that the digestion occurs only within the body of the animal and that the action of the bile is merely to render the protein suitable for such a rapid digestion Even in the case of the so called autolytic extracts the evidence that the toxic substance is a product of protein digestion does not seem entirely conclusive By shaking I have been able to increase the rapidity of formation of the toxic substance but the shaking was carried on at room temperature and the possibility that shaking merely increased the rapidity of digestion cannot be excluded I have made no observations that would afford evidence for or against the view that infection in pneumonia occurs through the blood stream

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CORPUS LUTEUM EXTRACT

WITH SUGGESTIONS AS TO ITS USE IN GYNECOLOGIC PRACTICE *

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BALTIMORE

The corpus luteum of the ovary, first described by Volcherus-Coiter,[1] was given its name by the celebrated anatomist, Malpighi That it is a periodically forming body following each ovulation and also that the corpus luteum of pregnancy is a more stable body than the ovulation corpus was recognized by Bischoff and other anatomic investigators of the first half of the nineteenth century

Claude Bernard was the first to attribute to the ovary the function of elaborating an internal secretion It is now fully established that the ovary does furnish a secretion which induces menstruation, maintains pregnancy during the early months, exercises a potent influence in the development of the individual, determines all the secondary sexual characteristics, i e, the development of the breasts, the uterus, etc, and maintains with other internal secretory glands an important trophic influence on the bones, the fatty tissues and the general metabolism

The first to suggest that the corpus luteum is the part of the ovary concerned with internal secretion was Gustav Born, while to L Fraenkel[2] is due the credit of establishing firmly on an experimental basis that the corpus luteum is a most important secretory gland, and probably represents the principal source of the internal secretion of the entire ovary This important contribution immediately attracted world-wide interest He showed in rabbits that the maintenance of pregnancy during its first half depends on the integrity of the corpora lutea! And in woman he demonstrated that removal of all the luteum tissue is followed by a failure of the next menstrual period to appear Other investigators have repeated his experiments and while some have obtained contrary results, taken as a whole all of these conclusions have been substantiated According to Fraenkel, the fresh corpus begins to form nineteen days after the beginning of the last menstruation reaches its height with the beginning of the next, and then gradually retrogresses so that at its end, lutean tissue has almost entirely disappeared

In addition to work along the lines taken by Fraenkel, others have sought to establish experimentally the undoubted relationship between the corpus luteum and other internal secretory glands Every clinician now recognizes that disturbances in the hypophysis, the thyroid the adrenals and the pancreas are often followed by upsets in the ovarian function Whether this is due to an inhibitory influence on the ovary, whether to the fact that the ovarian secretion in an effort to replace others fail completely to carry out its own, or whether the effect is some less direct action are most important problems and will be solved only by prolonged and pointed experimental work Some of this work has already been done

Rebaudi[3] has shown on rabbits that removal of the corpora lutea is followed by a proliferation of the cells of the islands of Langerhans in the pancreas When, after removing the corpora, he injected lutean extracts, this proliferation was markedly decreased

Giorgi[4] has shown that after removal of the corpora lutea there are marked changes in the hypophysis

Hallion[5] has shown that intravenous injection of the extract of corpus luteum causes, in addition to a general fall in blood-pressure, a marked congestion of the thyroid gland

Conversely, definite changes in the ovary have been noted after extirpations of the hypophysis of the pancreas and of the thyroid gland

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty Third Annual Session held at Atlantic City June 1912

[1] Volcherus Coiter Anat exercit observationesque variae Norimbergae 1573 p 121

[2] Fraenkel L Arch f Gynäk 1903 lxviii 428

[3] Rebaudi Zentralbl f Gynäk, 1908 No 41

[4] Giorgi Ginecologia 1906 iii 725

[5] Hallion Compt rend de seanc et mem de la Soc de biol 1907 ii 40

The anatomic structure of the corpus luteum has been so thoroughly worked out and is so familiar that it would be superfluous to redescribe it here; likewise the important question as to the histogenetic origin of the structure must be omitted for lack of space. Suffice to say that the lutean cells seem to develop both from the granulose layer of the ripe graafian follicle as suggested by Sobotta and from the internal theca cells, as described by John G. Clark.

While in the human being, the ape, the cow, the sow, the mare and the bitch corpora lutea are being continuously formed with each ovulation as distinct compact structures, in other mammals as the rabbit, the guinea-pig and the cat, the lutean cells are organized in a definite body only during pregnancy. In this latter class of mammals there is, however, a diffuse dissemination of lutean-like cells in the ovarian stroma between the primordial ova, to which the name of interstitial gland of the ovary has been given.

The most extraordinary specimens which I have ever had opportunity to study in reference to the formation of lutean cells have been afforded by the bilateral cystic ovaries removed with the uterus from a woman suffering with deciduoma malignum. In this specimen the ovaries were transformed into irregular polycystic masses and were as large as a grapefruit. Microscopically they proved to be almost entirely composed of lutean tissue. Not only about the cysts, however, but around the primordial follicles could be seen grouping themselves the lutean cells, while scattered through the stroma everywhere were similar cells just as they are sometimes found in the cat's ovary.

From this specimen I am inclined to believe that lutean cells under this unusual condition can develop in almost every part of the human ovary. Whether this overgrowth of lutean tissue is responsible for the wild development of the syncytial layer of the chorionic epithelium on the placenta, causing the deciduoma malignum, has never been determined but does not seem impossible.

OVARIAN INSUFFICIENCY

It would seem that the internal secretion of the ovary plays a rôle in the development and metabolism of woman only during that period which begins a few years before puberty and extends to a few years after the menopause.

Entire absence of internal ovarian secretion in the years just before and during puberty leads to a failure in development of the girl so affected. The uterus and other genital organs remain small and infantile. The mammary glands do not develop. The pelvic bones maintain more resemblance to the male than to the normal female type. There may be a failure of pubic and axillary hair development.

While such extreme cases are the exception, various lesser degrees of insufficiency are common. The girl may show the general anatomic secondary sexual characteristics, but she is abnormally slow in developing and menstruation is usually greatly altered, i. e., it may not appear at all, it may return at very irregular intervals or be associated with extreme dysmenorrhea, or as is sometimes the case it may be almost continuous, leading to severe anemias. Some of these girls will show a great increase in the fat of the body; they constitute a distinct group; others are not fat but extremely thin and anemic and generally poorly developed.

Marked digestive disturbances may occur. The symptoms from the urinary organs are usually slight. Generally speaking the nervous phenomena are markedly less than those which occur at the time of the menopause. They may, however, be most pronounced, producing all varieties of neurasthenia and hysteria up to and into definite psychoses.

Normally the change from childhood to adult life is a very gradual and probably a very continuous one. It is not uncommon in young girls to have, before actual menstruation begins, several recurrent phenomena in every way suggestive of the menstrual period, with the exception that there is merely a little leukorrheal flow and no blood. In such cases the assumption seems justifiable that the blood-vessels of the uterus are small and the corpus luteum but partly developed. When the new secretion furnished by the ovary begins to exert its influence on metabolism, there is doubtless a readjustment of all the internal secretions to meet the changed conditions and the greater the irregularity of the ovarian supply the more the disturbance must be.

At the menopause the ovaries cease functionating with the result that menstruation stops, the genital organs atrophy and the influence on metabolism is taken up by other internal secretory glands. This change is always progressive and slow; under ideal conditions it should hardly be noted in the general condition of the patient. This ideal is rarely met with, for during the period before its complete disappearance there is usually marked irregularity in the functionating of the ovaries, with resultant irregularities in menstruation, various functional disturbances of the heart, gastro-intestinal tract, the vascular system and especially of the nervous system. The degree of these symptoms varies immensely, from almost nothing to most extreme psychic and physical disturbances.

These disagreeable disturbances are so familiar to every physician that one needs only recall the heart palpitations, the rushes of blood to the head, the so-called hot and cold flushings, the general irritability, the weakness and incapacity to work to have a perfect picture of the condition.

Similar in every way but usually more stormy is the progress of the artificial menopause which follows the removal of the ovaries at an operation. Here, however, it is of interest too that some patients show no disturbance so far as general nervous manifestations are concerned. In such the ovaries may have been taking but a small part in general metabolism.

Not only at the extremes of sexual life, but also during the intervening period many women suffer from insufficient functionating of the ovaries. In some there are periods of amenorrhea and an accumulation of fat, in some amenorrhea and nervous phenomena, in some nervous phenomena without any disturbance of menstruation. These symptoms are encountered in some cases with definite evidence of disease in the thyroid gland, the pancreas or the hypophysis; such, however, constitute a small number when compared with those in whom there is no indication of disease outside the ovary.

The indications for the use of the active principle of the internal secretion of the ovary are therefore very varied. Up till the time of L. Fraenkel's first contribution we had been using various ovarian extracts with partial success in some cases and entire failure in many. Stimulated by his report we began in 1904 the use of corpus luteum tissue for a variety of functional disturbances. Dr. Howard A. Kelly began this work with me and has employed the substance extensively ever since. Our results have been so definite and so superior to those obtained with ordinary ovarian extract that we have become fully convinced that the corpus luteum plays the principal, if not the entire rôle, in the internal secretory activity of the ovary, so far as it has to do with causing menstruation and so far as it represents the substance whose removal brings on nervous manifestations of the menopause. It is not, however, the purpose of this paper to attempt to demonstrate that the corpus luteum extract is the active principle of the ovary or that the rest of it is inactive or that other organ extracts may not be sometimes efficacious with the same patients; it aims only to show what can be done in treating apparent cases of ovarian insufficiency in women with the corpus luteum tissue of animals.

CORPUS LUTEUM EXTRACT

Lebreton[6] began using corpus luteum in 1899 for the vomiting and other toxic symptoms which occur during some pregnancies. His results were partially favorable. Fraenkel[7] in 1910 published a review of his extensive employment of dried corpus luteum of the cow, and stated that he has had little or no success with it in relieving patients suffering with dysmenorrhea or the disturbances incident to toxemia of pregnancy. In marked contrast he has observed relief of the nervous and particularly cardiovascular disturbances of both the natural and artificial menopause, relieving about 90 per cent. of his patients. Dr. Charles A. Hill[8] of Pittsburgh has reported very favorable results in controlling the menopause nervous symptoms following double oophorectomy. Dievet[9] employed in Pozzi's clinic a glycerin sulphuric acid extract in the same class of cases with quite satisfactory results. Godart[10] has employed a similar prepared extract in treating patients who have suddenly grown fat and developed amenorrhea. In his cases the menstrual periods have been restored and there has been a marked reduction in the fat.

In addition to such therapeutic experiences, there have been a large number of valuable contributions bearing on the pharmacologic and toxic effects of lutean tissue. Ferroni,[11] Lambert,[12] Villemin[13] and others have shown that extracts of the corpus luteum when injected intravenously into rabbits, guinea-pigs and dogs are extremely toxic. They lead to rapid fall in the blood-pressure, paralysis of the muscular system and general symptoms resembling strychnin poisoning. On the other hand, given by mouth or hypodermically to rabbits, they are entirely non-toxic.

PERSONAL EXPERIENCES

My personal work has been done almost exclusively with the corpus luteum of the sow. In the beginning, I employed the fresh material, feeding it as a salad or raw-beef sandwich. After a little while, however, I began giving the dried product. The preparation of the substance was finally turned over to Hynson, Wescott & Company of Baltimore, who have been making it ever since. They put the gland up in the form of tablets, each of which contains 20 grains of fresh corpus luteum. These tablets deteriorate with age, but when fresh are apparently as effectual as the raw material.

EXPERIMENTS WITH DOGS

When fresh corpora lutea of the sow are taken, thoroughly cut to pieces, ground up and allowed to stand in salt solution for several hours and then filtered, there is obtained a clear fluid, which when intravenously injected into the dog causes general toxic symptoms, manifested by a general fall in blood-pressure, with final cardiorespiratory paralysis and death. This is in conformity with the experiences of all observers. A slightly different experiment was tried as follows: The animal (dog) was anesthetized and one-half of the double uterus carefully removed and put into suitable preservative; the animal was then immediately given intravenously a large dose of the extract, following which the blood-pressure was studied by a manometer connected with the carotid artery. At the end of three hours the other half of the uterus was removed. The purpose of this experiment was to determine if the injection of the extract produced any hyperemia of the uterus. Careful subsequent microscopic studies demonstrated that there was no more hyperemia after the injection than before it was given.

The above experiment was carried out on only two bitches, and the method, I know, is not conclusive in showing that luteum extract does not produce hyperemia of the uterus. Perhaps smaller doses and over several days should have been given, and better still, a sow should have been employed instead of a bitch. It would not be remarkable for the sow luteum not to be in this direction specifically effectual with the dog.

FEEDING RAW LUTEUM TO PATIENTS

My first experience was with a negro woman, aged 26, who came into the Johns Hopkins Hospital Dispensary, complaining of nothing but amenorrhea, of twelve months' standing. Examination showed a healthy, strong woman, with pelvic organs normal in size and in every other way. Her menstruation had begun at 14 years and had always been regular until the present trouble arose. This patient was admitted to the ward and was fed three times a day a considerable amount of the fresh corpus luteum of the sow. On the third day she began menstruating profusely and continued to do so for five days, when the luteum was stopped. She menstruated regularly for several periods subsequently without the product and was finally lost sight of.

The next step was an attempt to produce menstruation in three patients in whom the ovaries had been removed but the uterus left in. Two had had their operations over a year previous to the experiment; one was still convalescing in the hospital. All three were given enormous quantities of luteum, but not one of them showed any sign whatever of menstruation. From this, I conclude that when given by the mouth, even in very large quantity the corpus luteum of the sow cannot entirely replace the normal function of the ovary of the woman, so far as producing menstruation is concerned. On the other hand, when the ovary is partially functioning, it can supplement it and relieve amenorrhea.

EXPERIENCES WITH THE DRIED PRODUCT

My experience with the lutean tablets represents personal observations of a large number of private patients in my own practice and in the practice of Dr. Howard A. Kelly.

We have used the material principally for the relief of the nervous manifestation of the real and artificial menopauses and for vague nervous symptoms which occur during the active menstrual life. In addition, we have employed it in a number of cases of amenorrhea, or infantile genital organs, in a few cases of sterility, in a number of cases of dysmenorrhea and in two cases of repeated abortions.

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[6] Lebreton: cited by Fraenkel.

[7] Fraenkel: Arch. f. Gynäk., 1910, xci, 7[illegible].

[8] Hill, C. A.: Surg. Gynec. and Obst., 1910, x, [illegible].

[9] Dievet: Thèse de Paris, 1907.

[10] Godart: Thèse de Paris, 1908.

[11] Ferroni: Ann. di ostet. e ginec., 1907, i.

[12] Lambert: Compt. rend. Soc. de biol., 1907, lxii, 18.

[13] Villemin: Thèse de Lyon, 1908.

MENOPAUSAL SYMPTOMS

The hot and cold flushings, the extreme irritability and nervousness and other manifestations of the menopause are greatly improved in about 90 per cent of the cases Some patients will show no improvement whatever, and even apparently are made worse by the therapy The patients of this class in no way seem different from the others, and the cause is not evident The method of determining them is by the trial of the extract

The dosage varies greatly with the individual patient, in some, one tablet, three times a day, suffices, in others, in whom we have obtained satisfactory results, the dose has been as much as eighteen or twenty tablets a day doubtless even larger doses might be of advantage, but the expense of the drug precludes giving much more

Some patients complain of the taste of the tablets and occasionally of slight gastric upset otherwise there are no disagreeable symptoms In those patients who are relieved, the effect is generally noted within a day or two In some patients after the drug has been given for a few weeks, it can be stopped in others it has to be given continuously over much longer periods some patients of ours have taken it for a year or more

SYMPTOMS OF OVARIAN DEFICIENCY DURING MENSTRUAL LIFE

Certainly our most striking results have been obtained with a class of patients usually described as neurasthenics Most of them are over 25 years of age Menstruation is regular in its periodicity and in the duration and amount of flow and usually there is no complaint of hot and cold flushings, the patient is simply excessively nervous very easily fatigued by either mental or physical work, usually more so at the menstrual periods than at other times Many will improve slowly on rest cures, immediately, however, on trying to resume the duties of a normal life they go back Occasionally they will complain of slight dyspeptic symptoms and frequency of voiding The general physical as well as the local pelvic, examinations are entirely negative Many patients complain of marked periods of psychic depression

It must be clearly understood that this group of symptoms may arise from other causes than insufficient ovarian function It is however, astonishing how quickly and completely many such patients will respond to lutean therapy It has been my custom to give about nine tablets a day in the ten days before menstruation, to reduce this to six after the flow begins, and in the period from the end of the flow until the next time to give three tablets a day Often this therapy carried out for a month will give relief for many months The result is, as it were a reestablishment of a broken compensation between the internal secretory glands Rest and freedom from care help in this treatment but are by no means essential A good example is furnished by the following case

Mrs P D aged 3[illegible] married 12 years was the mother of six children Menstruation was regular She complained of nervousness, irritability inability to carry on the household duties and depression All symptoms were worse at the menstrual period This patient was first seen in October 1911 To nine tablet doses per diem she responded at once reported that she had not felt so well in years After one month of this treatment the dosage was reduced to three tablets a day and continued another month She then gave it up altogether, and is still feeling perfectly well

AMENORRHEA

The amenorrhea due to the real precocious or artificial menopauses is not relieved by the extract On the other hand we have had quite striking results in the cases of functional amenorrhea both in young girls and in adult women This applies both to the type in which much fat has been taken on and to that in which no fat has developed The drug is also quite efficacious in many cases in increasing the amount and duration of the flow There are, however exceptions to this In one patient with thyroid insufficiency and marked upset at the menstrual period with scant flow I was unable to obtain even with very large doses the slightest effect Undoubtedly the other internal secretions and the general condition of the patient play a necessary part in the question of menstruation It is however my opinion that in most girls in whom there has been some flow and in whom we have reason to believe that the ovaries are still to some extent active the lutean tissue will produce menstruation The following cases will serve as illustrations

Miss M H aged 25 was seen Feb 16 1912 Menstruation began at 14 was always irregular sometimes months elapsing between periods She had had no menstruation for eighteen months She had some headaches Examination showed a rather poorly developed girl Breasts were small the pubic hair poorly developed the uterus small and in anteflexion the ovaries small but otherwise normal An *x* ray picture of the head showed a normal sella turcica Patient was put on six lutean tablets per day, returned on March 8, twenty days later, reporting some improvement in headache, but no menstruation The dose was then raised to twelve tablets a day under which she began to menstruate on the third day and passed through a normal menstrual period five days' duration

Miss A M May 22, 1911 aged 22 had menstruated normally from the age of 15 until one year before we saw her She then suddenly ceased menstruating and after a while was seized with the obsession that she was pregnant Every effort was made to disabuse her mind of this idea but without avail Five weeks previously to coming to Dr Kelly she had a retroflexed uterus suspended but without result The general examination showed a healthy girl with apparently normal pelvic organs One of the principal reasons that she argued for her pregnancy was the lack of menstruation She was seen by an expert psychiatrist who took charge of her case He assured her that she would menstruate in a few days, which she did under doses of twelve tablets per diem The return of the menstruation with the psychic treatment which she received sufficed to relieve her

Miss L M May 21, 1912 aged 22 complained of amenorrhea and nervousness The menstruation began at 13 had always been irregular, lapses of from two to eight months occurring There was no dysmenorrhea the flow lasted two days and was very scant This patient was quite fat did *not look at all ill The general examination showed a healthy* girl pelvic organs normal but rather infantile This patient was started on six grains of luteum per diem and after a few days began to show a trace of menstruation which had not appeared for seven weeks The dose was increased to twelve tablets a day when the flow became profuse and lasted in all five days when the luteum was discontinued She stated that she had never had a menstrual period similar to this before

DYSMENORRHEA AND STERILITY

We have employed lutein extract in a number of patients with dysmenorrhea giving the tablets in some cases during the entire month and in others at the time of the menstrual period alone The results have been so uncertain as to lead us to think that the drug does not have much of a field in relieving menstrual pain in some cases it increased it On the other hand, it does in some cases help the nervous symptom

Our use of the extract of luteum in cases of sterility has not yielded any results In these cases, we hoped that the increased congestion might help the ovum in setting itself Nearly all of these patients, however, suffered from leukorrhea, stenosis of the os uteri and other conditions

REPEATED ABORTIONS

Fraenkel's work gave the hope that some of the unexplained abortions in the early months of pregnancy might be due to an absence of lutean secretion In two of these patients, I tried the giving of large doses of luteum for several weeks Both of them aborted just as they had previously done repeatedly about the end of the third month I do not feel that this line of work however is closed The definite opinion can be formed only after an extensive trial

CONCLUSIONS

1 When given by the mouth corpus luteum tissue of the sow, even in large doses has little or no toxic effect on woman

2 It affords us a valuable means of controlling the nervous symptoms which occur in so many patients at the time of the natural or artificial menopause, giving relief to most sufferers

3 It is a valuable remedy in treating patients with insufficient internal ovarian secretion during the menstrual life This class constitutes a very large number of women

4 It is an excellent remedy to induce menstruation in young women suffering from functional amenorrhea Those who are fat in addition to regaining menstruation usually, but not always, lose weight

5 There would seem to be a possibility for the drug in cases of unexplained sterility and repeated abortions

6 Extensive use should be made of corpora lutea from the cow sheep and other animals to determine if these extracts work more successfully than those of the sow The ideal lutean tissue for any animal is doubtless tissue from its own species but this cannot be obtained for the woman

7 So far as it goes my work strengthens my conviction that Fraenkel is correct in attributing menstruation to the internal secretion of the corpus luteum

8 From clinical experiences I am inclined to believe that the corpus luteum possesses different properties due to different chemicals One of these substances causes hyperemia of the pelvic organs another relieves nervous symptoms of a toxic character as at the menopause It would seem that this product acts as a neutralizer, since even large doses of the lutean cause no disturbances of a toxic nature On the other hand, the toxic results of intravenous injections of the lutean extracts as well as the nervous phenomena of menstruation show that there must also be some toxic material present which is not absorbed from the stomach or intestines All of these various substances may in the future be separated

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ABSTRACT OF DISCUSSION

Dr John Rogers New York The great difficulty is the definition of the groups of cases in which organotherapy is beneficial It is best to define them as belonging to the fatigue or functional rather than to the structural, organic disorders Nearly all of these patients present a history or evidence of fatigue inability, or inability to stand stress of any character The symptoms of which they complain may be most diverse—thyroid enlargement with hypo or hyper thyroid symptoms gastro intestinal disturbance and high or low blood pressure The blood pressure (in addition to the thyroid) is the single guide in the physiology of the subject This has its origin in the "sympathetic adrenal" or chromaffin system, as far as we know The character of the adrenal is that of a secreting gland, therefore, subject to fatigue Many of the cases mentioned by Dr Burnam can be relieved by thyroid feeding as well, or almost as well as by corpus luteum Furthermore, treatment directed toward the genitals will relieve disturbances in a totally different part of the body, and some hypothetical physiology must be formulated to explain these phenomena For this purpose I assume that the chromaffin system exerts a trophoneurotic effect on glandular structures We know that the cortical portion of the adrenals has a trophic influence on the genitals, that the medullary portion of the adrenals, through its epinephrin, controls the contraction of the blood vessels (in this region) and that the sympathetic is the only nerve supply The disorders which can be relieved by thyroid or ovarian feeding are usually accompanied by an abnormally high or low blood pressure The corpus luteum represents the only known secretory product of the ovary If feeding with this or thyroid substance relieves symptoms which are traceable to local congestion or anemia it is possible or probable that one of three factors necessary for perfect function in any organ of internal secretion is lacking The first factor is the nutritional matter in the blood the second is some substance peculiar to the secretory epithelium of each gland, (in the ovary the cells of the corpus luteum) and the third is the terminal filament of the sympathetic which conveys a vitalizing element from the cortical part of the adrenals permitting or compelling the assimilation of nutrition from the blood by the ovary When relief is obtained by feeding corpus luteum, we must assume there is some fatigue or functional defect in the product of the patient's ovary, and when this is supplied the nutritional chain is completed A structural or organic defect cannot be thus relieved, and this must be the explanation of the failures in organotherapy, for a complete absence in any bodily secretion or structure cannot be remedied by any known means at our disposal

Dr. Charles Mayo Rochester, Minn There is no question but that there is a correlation of the glands as described by Dr Rogers We are probably given a greater amount of each of them than is necessary, since we can probably get along with a tenth of the pancreas and with from a sixth to a tenth of the adrenals One sixth of the thyroid in the adult seems to furnish all that is necessary, though it is probably not enough for the child In certain invertebrate types the genital organ is the anlage of the thyroid in higher animals This suggests the relationship which exists in higher animals between the thyroid and the genital organs and which is most noticeable in the female at puberty The thyroid is also enlarged in the pregnant woman Vomiting of pregnancy is perhaps best treated by the administration of corpus luteum Also the hot flashes the cold feet and hands, the changes in circulation, etc, noticeable at the menopause, are best controlled by this extract In young women who take on fat and who have scanty and colorless menstrual flow which may cease entirely at 28 or 30 years of age thyroid feeding has, in some cases been helpful All of this supports the correlation of which Dr Rogers has spoken

Dr S M D Clark, New Orleans For the last two or three years in our clinic at Tulane we have been making some observations in reference to the extract of the corpus luteum In the beginning I was careful to caution the men not to become enthusiasts over it and not to imagine that they had any good from its use unless it were actually there In other words we were skeptic We went along gradually and after a certain time began to observe some good results which we felt could be attributed to the extract I have used it in amenorrhea, and in postoperative nerve-disturbance cases and though there have not been uniformly good results, sufficient benefit has been observed to warrant its continuance The point on which Dr Burnam has instructed me is in the dosage We have not been using so large doses as he gives I am going to increase the dosage and watch results carefully

Dr J C Litzenberg Minneapolis For two years we have been using the corpus luteum in the outpatient department of the University of Minnesota Hospital Like Dr Clark, I feel that our results have not been such as to make us enthusiastic, also, like him, I feel encouraged One of the first effects noticed was absence of the nervous symptoms usually associated with the menopause One case may illustrate my meaning The woman came into the hospital at the age of 34 with all the symptoms of a premature menopause She gave the history of the other women of her family, who had the menopause at 35 and 36, her mother ceasing to menstruate at 35 years We put her on the corpus luteum extract and the result was an immediate discontinuance of the nervous symptoms with scarcely any influence on the menstruation She was continued on the extract for a long time and the menstruation began gradually to increase Her normal menstruation was not reestablished until she had been taking the medication for about eight months I presume that if we had given such large doses as Dr Burnam has given, we might have obtained earlier results We have other cases in which the results have been the same

Dr Emil Novak, Baltimore It seems to me that for the present our employment of the corpus luteum extract must be in large measure empirical In the first place, it must be borne in mind that the work of Fraenkel has not been generally accepted Loeb, for example has arrived at conclusions almost diametrically opposite to those of Fraenkel According to Loeb not only is the corpus luteum essential to menstruation, but, as a matter of fact, it lengthens the sexual cycle, preventing the occurrence of menstruation and increasing the duration of the intermenstrual period The work of Halban moreover, seems to indicate that perhaps the ovary is not quite so essential to menstruation as we have been in the habit of believing This investigator brings forth evidence to show that the ovary *is not the primary* cause of menstruation, but that it is only the activator of some underlying stimulus arising in some other organ, most probably the ductless glands The administration of corpus luteum in cases of amenorrhea must be founded on individualization of the cases, on our ability to discriminate the underlying cause of the disturbance whenever possible In any of these cases it would seem that the pituitary body is more closely bound up in a causative way than in the corpus luteum If this be the case the treatment would very rationally consist in the administration of pituitary extract rather than that of corpus luteum This is especially true of those cases of amenorrhea associated with adiposity which there is now much reason to believe are of pituitary origin I have employed corpus luteum in a limited number of cases of the type indicated by Dr Burnam but on the whole the results have not been very striking Advance along these lines I repeat may be expected when we are better able to distinguish the underlying cause

Dr C F Burnam, Baltimore The question of the hypersecretion and hyposecretion of the internal secretory glands is a live one but still obscure It is certain that other glands can vicariously assume the functions of the ovary to a large if not complete extent What I desire to emphasize now is first that when taken by the mouth lutean tissue is nontoxic, second that large doses often act when small doses fail that it is an efficient product for inducing menstruation in cases of amenorrhea, furthermore, patients with scant menstruation, when given twelve tablets a day will have normal periods The symptoms such as hot flushings nervousness and sweatings, characteristic of the normal and artificial menopauses can be greatly relieved I have tried thyroid and pituitary extracts for these conditions but have not secured satisfactory results Everybody is thinking and many are working along this line and the results which will add to our therapeutic means are sure to come I feel that I have made just the slightest beginning in this direction

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The Essentials of a Good Doctor—It takes a good man to make a good doctor It takes a sensible man to make a wise doctor It takes an honest man to make an honest doctor It takes a virtuous man to make a trusted doctor —S D Swope in *New Mexico Medical Journal*

PUERPERAL INFECTION

A STUDY OF SOME OF THE MOST INTERESTING AND PRACTICAL FEATURES OF THE DISEASE *

THOMAS J WATKINS MD
CHICAGO

From the study of recent literature and also from personal observation, I am impressed by the great difference of opinion that exists concerning the treatment of puerperal infection My investigations indicate that too much local treatment continues in use mostly the result of tradition The clinician has not kept pace with the pathologist in the study of infections and immunity

I EXTRACTS FROM GERMAN AND AMERICAN LITERATURE ON PUERPERAL INFECTION

Schottmuller[1] is credited with reawakening interest in study of anaerobic infection in puerperal sepsis he showed anaerobes in the blood and demonstrated that they are a frequent cause of thrombophlebitis

Bondy[2] reports one hundred abortions of which eleven were from anaerobic streptococcus infections In one of these cases he obtained the anaerobic streptococci in pure culture from the blood and in one from a pelvic exudate

Fellner[3] believes in non-interference except when retained tissues cause severe intoxication

Palmer Findley[4] is of the opinion that in virulent streptococcus infection it is better to encourage spontaneous expulsion by ergot, failing the uterus must be emptied by mechanical means the finger preferred

Mayer[4] would remove placental rests with the least possible injury to the uterus and at the earliest possible moment

Fromme[5] believes in prompt removal of placental remains in cases not streptococcic He irrigates packs twelve hours then cleans out with the finger If hemolyzing streptococci or liquifying staphylococci are present, the placental remains are not removed unless chills occur or fever greatly increases

Harrar[6] advocates intra-uterine douches in puerperal infections with streptococci or the colon bacillus In cases of infection with other organisms he believes douches are not indicated

Montgomery[7] believes generally in non-interference although he advocates operation in all cases in which occur localized collections of pus

Pankow[8] favors hysterectomy in severe virulent infections

Polak[9] advocates digital exploration of the interior of the uterus to ascertain its contents needless to say a well-contracted uterus with closed cervix is not entered In putrid or saprophytic endometritis the uterine contents are removed with the finger or placental forceps

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty-Third Annual Session held at Atlantic City June 1912

* I am indebted to my associate Dr Arthur H Curtis for a perusal of all of the indexed literature on puerperal infection by American and German authors for the last two years and for valuable suggestions

[1] Schottmüller Mitt a d Grenzgeb d Med u Chir [illegible] xxi 470 München med Wchnschr 1911 lviii [illegible]

[2] Bondy München med Wchnschr 1911 lviii [illegible] Monatschr f Geburtsh u Gynäk 1911 xxxiv [illegible] Zentralbl f Gynäk 1911 xxxv [illegible]

[3] Fellner [illegible] Klin [illegible] xxi [illegible]

[4] Findley Interstate Med Jour 1911 xviii [illegible]

[5] Fromme Ergebn d Geburtsh u Gynäk [illegible] Monatschr f Geburtsh u Gynäk 1911 xxxiv [illegible]

[6] Harrar Am Jour Obst 1911 lxiii [illegible]

[7] Montgomery Tr Am Gynec Soc 1910 xxxv [illegible]

[8] Pankow Ztschr f Geburtsh u Gynäk [illegible]

[9] Polak Tr Am Gynec Soc [illegible] Am Jour Obst 1911 lxiv 461

The uterus is then packed for half an hour with gauze soaked in iodin Nothing more is done after removal of the gauze He believes that vaccines of all forms are useful in puerperal sepsis

Ries[10] would leave the uterus alone except for hemorrhage

Mermann's[11] rule is never to examine any case post partum, irrespective of fever, except when hemorrhage occurs or when symptoms and external examination show a likelihood of a vaginally accessible exudate

Schottmuller[1] is of the opinion that expective treatment is not productive of as good results as active treatment This includes all types of infections He obtained positive blood-culture in five out of fifteen cases of anaerobic *Streptococcus putridus* Positive blood-cultures were obtained two times in fifteen cases of hemolyzing *Streptococcus erysipelatis* He concludes that hemolyzing streptococci and the anaerobic *Streptococcus putridus* are of almost equal frequency in puerperal infections, *Bacillus coli,* staphylococci and the Welch bacillus are found much less frequently

Sachs[12] advises as follows

1 In cases with infections spread beyond the uterus, never give intra uterine treatment

2 If *no extension occurs beyond the uterus*

A If no hemolyzing streptococci remove the uterine contents This is preferable to expectant treatment and does no harm

B In the presence of hemolyzing streptococci, let alone

3 In cases of infection with anaerobic organisms further study is desirable

Semon[13] has never seen non-hemolyzing streptococci in the blood-cultures of *puerperal infections*

Venus[14] in acute thrombophlebitis removes the uterus and ligates the pelvic veins Lenhartz and Trendelenberg claim that thrombophlebitis is present in 50 per cent of the cases of puerperal infection that come to post-mortem

Veit[15] practically rules out all indications for hysterectomy in puerperal infection If only avirulent *streptococci are present,* he cleans out the uterus Expectant treatment is advised if hemolyzing streptococci cause the infection

Vineberg[16] advocates hysterectomy in selected cases Acute salpingitis and ovaritis of puerperal origin he treats by an extraperitoneal incision parallel with Poupart's ligament He advises against extensive intra uterine treatment

Winter's[17] *routine treatment*

1 Cultures are made

2 Vaginal examination is then made

3 If no hemolyzing streptococci are found it is permissible to clean out the uterus, but Winter usually waits a week or more for expulsion of the uterine contents

4 If hemolyzing streptococci are present local treatment is *advised against*

5 If parametritis exists, the uterine cavity must not be touched

Zangmeister,[18] from bacteriologic work, concludes as follows Streptococci (hemolyzing and non-hemolyzing) are responsible for 86 per cent of post-abortive and puerperal infections Streptococci are present in the vaginas of 32 per cent of pregnant women During the first ten days of the puerperium they are present in 43 per cent Hemolyzing streptococci are never found in pregnant women before labor During the puerperium they are present in 13 per cent The treatment advocated by Zangmeister is as follows

1 With retained tissues, he would leave to Nature

2 In cases of retained tissues he agrees with Winter

3 With abscesses and exudates, he will incise only when pointing Concerning ligations of the pelvic veins, Zangmeister agrees with Bumm that this is of no value in acute cases and that the value of ligation in chronic cases is beyond a doubt

From personal observation, especially as regards the family physician, I find that, in most cases of puerperal infection, curettage, douches and intra-uterine medication are common treatment Most of my patients with puerperal infection had been subjected to these remedies before they were sent to the hospital

II PATHOLOGY—A SUMMARY OF SOME CHANGES ON WHICH THE TREATMENT SHOULD BE BASED

The disease is essentially systemic It has ceased to be local after fever has developed, the bacteria probably soon invade all the tissues of the body The following facts support this statement

1 The bacteria easily gain direct access to the general circulation through the infected thrombi in the uterine sinuses

2 The lymphatic vessels are large and active

3 Blood-cultures frequently show the presence of bacteria Negative results from blood-cultures are probably due to the absence of delicate tests, and are often due to the fact that anaerobic cultures are not made

Evidences that the infection is essentially systemic a e

1 The *severity or duration of the disease show little* or no relation to the presence of remnants of conception or inflammatory pelvic reactions

2 The severity and duration of the disease depend mostly on the virulence of the invading bacteria and the time required to develop a general immunity

3 The temperature curve is much the same as in many of the other general bacterial infections

4 Excision or incision and drainage of abscesses do not usually lessen the severity or shorten the duration of the disease

5 The presence of inflammatory exudates is not an essential feature of the disease, as they are largely accidental, depending on the amount of irritation the infective material may produce and on emboli that may result

The fact that in offensive cases the patients seldom die with expectant treatment is interesting and possibly suggestive of the relation of putrefactive to the more virulent bacteria The presence of putrefactive bacteria in cases of mixed infection may diminish rather than add to the virulence of the other bacteria

Cultures from the uterus have a large element of uncertainty, as Rosowsky[19] found in the vaginal discharge of sixty-one normal non pregnant women the anaerobic *Streptococcus putridus* in 40 per cent. Zangmeister[18] found hemolyzing streptococci in 13 per cent. of women during the puerperium. Winter[17] states that approximately 33 per cent. of women have virulent streptococci in the vagina. Numerous observers have reported the frequent presence of virulent bacteria in the lochia of afebrile cases. Blood-cultures are the only means at present for accurate diagnosis of the variety of infection. Although bacteriologic examination is not of much value as yet to the patient, it should be done as an interesting, instructing and fruitful research problem.

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[10] Ries Physician and Surg., London 1909 xxxi 387

[11] Mermann Arch f Gynäk, 1907 lxxxii 28

[12] Sachs Zentralbl f Gynäk 1912 xxxvi 193

[13] Semon Monatschr f Geburtsh u Gynäk 1911 xxxiii 148

[14] Venus Centralbl f d Grenzgeb d Med. u Chir., 1911 xiv 484

[15] Veit Prakt Ergebn d. Geburtsh u Gynäk. 1910 i 1 ii, 2-3

[16] Vineberg Tr Am Gynec Soc 1910 xxxv 237 Surg Gynec and Obst 1910 xi 70

[17] Winter Med Klin., 1910 vi, 127 Zentralbl f. Gynäk., 1911 xxxv [illegible]

[18] Zangmeister Prakt Ergebn d Geburtsh u Gynäk. 1910 [illegible]

[19] Rosowsky Zentralbl f. Gynäk 1912 xxxvi, 4

III. LOGICAL METHODS OF COMBATING THE INFECTION

The disease is essentially systemic and should be treated chiefly by general remedies.

As puerperal infection is a combat between the invading bacteria and the body resistance, the logical treatment resolves itself into the use of remedies to injure the bacteria or to strengthen the resisting forces of the body. As yet no remedies are known that directly limit the growth or destroy the bacteria of puerperal infection.

The use of vaccines and serums continues to be in the experimental stage with the possible exception of colon bacillus infection. To increase the body resistance one has to depend chiefly on food, liquids, rest, sleep, cheerful surroundings and general hygiene. The use of a large amount of liquids to dilute the toxins and to promote elimination is an important part of the treatment. I have found that these patients usually improve very rapidly when they can be kept out of doors much of the time. With the out-door treatment they usually are able to assimilate a large amount of food and to procure much sleep. Anodynes and sedatives when indicated are given, but stimulants are not used, as rest, not action, is needed. I believe that much of the local treatment and operations that have been and continue to be so generally used favor the bacteria and injure the resisting forces of the body.

IV. LOCAL REMEDIES

The greatest amount of difference of opinion in the treatment of puerperal infection obtains in the indications for surgical intervention. The various opinions as regards the indications for emptying the uterus may be classified as follows:

1. It should never be emptied, except for hemorrhage.
2. It should always be emptied except when hemolyzing streptococci or pelvic inflammatory exudates are present.
3. It should always be emptied when products of conception are known to be present, irrespective of bacteriologic findings.

Never to explore or empty the uterus except for hemorrhage seems to me to be consistent with the modern interpretation of infection and immunity. The infected uterus, if left alone, will soon spontaneously expel any retained products of conception. There is no evidence that the presence of such tissue increases the growth or virulence of the more dangerous bacteria. Emptying the uterus removes most of the bacteria of decomposition, but they are often if not always associated with virulent bacteria and are not of much importance as regards health or life. Curetting with the finger or instrument produces raw surfaces, disseminates the infection, may dislodge septic thrombi and thus produce embolic infections and pelvic inflammatory exudates.

TABLE SHOWING RESULTS OF OTHERS

Name	Cases Treated	Percentage Cleaned Out	Method Employed	Other Operations	Percentage of Mortality	Treatment at Present Advocated
Bondy	420	100	Finger or curette		8.7 of febril cases	
Polak	200	All except cases with cervix closed	Finger or forceps. ½ hour iodin gauze pack	Pryor operation 12 cases.	3.0	Digital exam., removal with finger or forceps, pack uterus one-half hour with iodin soaked gauze
Schottmüller	1,000 abortive febrile and afebrile				3.0	In experience of Schottmüller expectant treatment is not accompanied by as good results as is removal by use of finger even in cases of streptococcus infection. Thinks question not definitely settled by our present knowledge
Schottmüller	70 infective with hemolyzing streptococci	81	Finger		5.2 of cases cleaned out 30.7 of cases treated expectantly	
Winter	100 abortive with septic infection				13	Abortion with no infection, cleans out the uterus. If no hemolyz. strep., cleans out only if high fever, severe intoxication or if placenta remains in uterus a week or two. If hemolyz. strep. is extremely slow in considering any invasion of uterus. If parauterine infec. does not touch uterus

In case of hemorrhage, which means separation of decidua or placenta, a gauze pack in the vagina or in the lower uterine segment will stop the bleeding and hasten spontaneous expulsion of the retained tissue. There is more danger of surgical intervention in the absence than in the presence of a pelvic inflammatory exudate, as in the latter instance the vessels are 'blocked.'

It would seem inconsistent to advise curettage in mild infections and to advocate non-interference in infections due to hemolyzing streptococci. It suggests that some patients are 'too sick to be treated,' that some have not enough strength to tolerate the treatment. It is difficult to appreciate how a treatment that is dangerous for the very ill can be of much value to those not so sick.

What of the so-called saprophytic cases in which removal of the decomposed tissue is often soon followed by recovery? Even in these cases it would seem better to await spontaneous expulsion or to use gauze packing rather than to traumatize the tissues. In none of these cases can one be certain that a mixed streptococcus infection is not present. There is some objection to the use of gauze as it obstructs drainage, but I believe it is the lesser of two evils. It is not uncommon in these cases to have the temperature drop to normal in the morning without removal of the placenta, after it has been up to 103 F or 104 F the previous night Retained tissue will soon be expelled spontaneously If there is not a virulent mixed infection, the retained tissue does not much prolong morbidity and does not endanger life If the retained tissue contains virulent bacteria, the traumatism resulting from interference is dangerous

The use of douches in puerperal infections is of historic interest only

V PELVIC INFLAMMATORY EXUDATES

In non-puerperal cases, gynecologists agree that operations should seldom be done during the acute period of the disease There is less indication and more objection to operation in the acute puerperal than in the acute non-puerperal case In the puerperal case the exudate in nearly all cases entirely disappears by absorption This exudate is less amenable to surgery than the non-puerperal The tissues changing by involution and the parturient patient have a relatively diminished resistance to surgical interference The exudate rapidly disappears spontaneously after a general immunity has developed To attempt drainage of a solid exudate usually means a secondary infection Even with cases with suppuration, the abscesses are generally multiple can not all be drained, and secondary infections are nearly certain to result In a few cases the abscess will point to the surface, generally in secondary colon bacillus infections, and indicate incision and drainage

VI HYSTERECTOMY

Hysterectomy is very seldom indicated The patients infected with hemolyzing streptococci will usually die when hysterectomy is done, and that in the other infected cases the patients will live without hysterectomy would seem to be a conservative statement

VII ABDOMINAL SECTION FOR THROMBOPHLEBITIS AND GENERALIZED PERITONITIS

The valuable work of Williams and Trendelenburg is interesting and suggestive I have not done this operation and have had but one case of thrombophlebitis in which excision of the affected veins might have been of value The operation would seldom if ever, seem to be consistent with the modern interpretation of infection and immunity

Abdominal section for suppurative peritonitis may have a limited field The patients of this kind, operated on early in our practice who were treated by abdominal section died The operation to be of value would have to be done early in the infection Most of these cases could probably be as well treated by free puncture and postural drainage through the posterior vaginal fornix as by abdominal section We have had but one case in which puncture through the posterior vaginal fornix seems to have been of value

VIII PERSONAL OBSERVATION

Eighty-nine cases are included in my series which dates from seven years ago when operative interference was discontinued in acute cases except in rare individualized instances Nearly all of the patients were the severely infected ones who are usually referred to the hospital The greater proportion had been curetted one or more times and had received intra-uterine antiseptic douches

Of the eighty-nine patients eight died Six deaths were from generalized peritonitis and the patients were in a hopeless condition when admitted to the hospital One died from large multilocular pelvic abscess, colon bacillus infection which was incised and drained, and terminated in generalized peritonitis and death The other died from a hemolyzing streptococcus infection with numerous mycotic emboli

Local treatment was employed more in my earlier cases and all except two deaths occurred in the first half of our series *With the progress of time less operative* work has been practiced, with coincident decrease in morbidity and mortality

Fifty of the patients received supportive treatment only In the thirty-nine other cases the treatment was mostly expectant About 50 per cent of our patients have had pelvic exudates Nearly all of the patients with exudates had had intra-uterine treatment before they came under my care In only one instance in the last sixty-nine cases, that of a metastatic abscess in the gluteal region, was drainage made The exudates varied in size from slight thickening to masses that extended nearly to the umbilicus There was usually very slight diminution in size during the acute period, but when the temperature became normal—when a general immunity had developed—the absorption was very rapid Some of the patients had slight relapses of fever for two day or three-day intervals In all of the cases the exudate had practically disappeared when the patient left the hospital The average stay in the hospital was about three weeks

IX CONCLUSIONS

1 Puerperal infection is essentially a systemic infection, the treatment should be chiefly general

2 The only general treatment of established value consists of remedies which strengthen the body resistance, hastening the development of general immunizing bodies

3 Retained products of conception should be left to escape spontaneously In individual instances gauze packing should be used to check bleeding, to hasten separation of the tissues and to stimulate uterine contractions

4 Pelvic inflammatory exudates usually will disappear entirely by absorption, exceptional cases, usually secondary colon bacillus infections, require incision and drainage

5 Cases of suppurative peritonitis should be operated on early

6 The vigorous operative treatment that is often used is more dangerous than the disease

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ABSTRACT OF DISCUSSION

Dr David J Davis, Chicago There can be little doubt that the main theme which this paper discusses—namely, the systemic character of these infections—is fundamentally correct and *furthermore, that the method of treatment advocated is,* generally speaking, based on sound pathologic principles Acute infections in all parts of the body in many respects behave much alike though anatomic relations are important An acutely inflamed appendix for example, early in the process can be easily removed with practically all the infected tissue, and there is little danger of spreading the infection This is on account of its peculiar anatomy The uterus, on the other hand especially during the puerperium, is a very different organ Here is a loose spongy, highly vascular tissue intimately connected with neighboring parts through lymphatics blood vessels etc and excellently adapted for absorption of bacteria and their products Naturally, there exist all grades of infection

Generally speaking, immunity factors, as, for instance, the phagocytes, are more sensitive to external agents, antiseptic fluids and the like, than bacteria. Also mechanical interference might remove some bacteria, but with them it would remove defenders of the body and open fresh wounds for further invasion of bacteria, scattering them about or perhaps forcing them deeper into the tissues. In many ways the acutely infected uterus resembles the acutely infected tonsil with deep crypts crowded with bacteria. We do not advise gouging out or extirpating a tonsil when in an acutely inflamed condition because experience has shown it to be disastrous.

The systemic effect of puerperal fever is, as has been stated, due to absorption of bacterial products or general invasion by germs. The former takes place undoubtedly in every case. The direct invasion of blood streams often occurs, as shown by the positive blood cultures so often obtained. It should be pointed out that in reality invasion of the blood stream is undoubtedly more common than positive blood cultures indicate common as they are. Bacteria are not thrown into the circulation from such infected foci always in a continuous stream, but often from time to time in masses in the form of small infected emboli. Such masses may soon be destroyed and in a short time the blood be sterile again. One can therefore understand that positive blood cultures may depend on obtaining blood at a time coincident or nearly so with such an embolic distribution. I think it is probably true as in typhoid, pneumonia, possibly tuberculosis and other infections that bacteria probably may be found in the circulation some time during the course of the disease in practically all cases of puerperal sepsis.

Dr. H. J. Boldt, New York: We may not be able to draw a conclusion as to prognosis from the result of our blood culture. When we have something left in the uterus and there is the *slightest evidence of an elevation of temperature* it does *not* seem to me that it is proper at any time to wait until that temperature rises sufficiently to endanger the life of the patient. Whether it be a saprophytic or septic infection we do not know how soon that infection will become dangerous. The main point is that when something is in the uterus to get it out as soon as possible and with as little traumatism as possible. I never use a curet in such cases.

Dr. J. O. Polak, Brooklyn: When an exploration with the finger reveals the presence of something within the uterus the contents should be removed, but we should stop there with our intra-uterine treatment. Each case of puerperal infection has to be diagnosticated and treated on its clinical and bacteriologic findings. We must determine in each particular case: 1. Is the uterus empty? That is the starting point. 2. Has this infection spread beyond the uterus into the parametrium or is it in the blood? 3. If in the blood, what is the character of the infection? 4. What is the resistance of the individual patient? The first point is met by the exploration of the uterus with the gloved finger to know that it is empty. If it is not, its contents should be removed with the very least trauma. The method is determined by the period of pregnancy. Although one may use a curet in a pregnancy before the eighth week, the curet should never be used in midpregnancy or the later months. The finger is the only method that will give satisfactory results. If the material cannot be completely removed with the finger, packing the uterus with gauze saturated with tincture of iodin and leaving it in the uterus for twenty minutes will remove the detritus. The high Fowler position to attain postural drainage has its largest field in puerperal sepsis. If a woman has a rise of temperature and she is placed in this position the temperature will improve if nothing else is done. This can be carried out in every home and it secures uterine drainage.

Dr. C. O. Thienhaus, Milwaukee, Wis.: About five years ago many a patient suffering from puerperal septicemia was curetted and maltreated with iodin over and over again and without question many a woman lost her life on account of this pernicious polypragmasia. To-day Dr. Watkins goes to the other extreme and advocates absolute apragmasia and believes that we should rely entirely on the *vis medicatrix Naturæ*. To this, however, I cannot agree. To leave pieces of stinking placental tissue within the uterus so that the surroundings of the patient get unbearable and even tympany uteri may ensue is, I believe, conservatism going a little too far. I agree with Dr. Boldt and the other speakers that if placental tissue is left within the uterus it should be removed carefully with the finger.

Dr. J. B. DeLee, Chicago: I wish to support the position taken by Dr. Watkins. I base my judgment on the results of the treatment of a large number of cases in the service of the Chicago Lying-In Hospital. In view of the great diversity of opinion on this subject I would recommend the appointment of a commission to decide it as far as we can and report at our next meeting, i. e., whether or not a uterus containing infected placental remains should or should not be emptied. The Germans decided in the affirmative on this point, but not unanimously. At a recent meeting in Chicago the sentiment of the discussion was that infected placental remains should be removed.

Dr. George M. Boyd, Philadelphia: The practice of curetting in the abortion case with a dull or sharp instrument has led to the curetting of the uterus in the early stage of the puerperium, and that use of a dull or sharp instrument for investigation early in the puerperium I take it from my own experience is harmful in many ways. It is an old story. I remember Lusk giving out the conservative word twenty years ago at a meeting of the New York Obstetrical Society, cautioning those who were advocating instrumental interference against the dangers, speaking of the formidable results which usually followed in these cases. To go carefully into the history is a very important point in every case of infection. This will reveal the variety, focus and extent of the infection and will tell whether or not the uterus is empty.

Dr. T. M. Burns, Denver: I have irrigated the uterus and found the temperature lower the next day. I have omitted irrigation the following two days and found the temperature no lower. On the third day I have reirrigated and have found the temperature lower than after the first irrigation. I have done this for the purpose of showing the effect of uterine irrigation. I have given a sweat by means of weak hot lemonade in a number of cases with very gratifying results and have seen no harmful effects. In the onset of typhoid fever following the sweating the temperature sweeps up, while in puerperal infection the opposite occurs.

I have seen curettage do good and have seen it do harm. I have curetted the uterus in thrombophlebitis with excellent results. I have employed hot fomentations in about twenty cases of thrombophlebitis and in all immediate relief was obtained and never any signs of embolism. Sustaining treatment and suggestion are always of great value. Some infected patients die of fright.

Dr. E. G. Zinke, Cincinnati: Puerperal infection is so varied and so different even at different times in the same patient that it is utterly impossible to present a clear picture of what you have in your mind within three minutes. Dr. DeLee has presented the subject about as nearly as possible from my own point of view. I agree with many of the statements made by Drs. Watkins and Curtis. I agree with Dr. Boldt that the uterine cavity should be emptied gently. It can be done gently. Under no circumstance would I permit a woman with a puerperal infection to go on with a mass within the uterine cavity, no matter what the period of gestation. I know the difference in the several puerperal infections and the avenues which the infections may pursue, whether by the blood-vessel route, by way of the lymph-channels, or whether the poison finds its way directly into the circulation. And this makes all the difference in the world. In cases in which the *Streptococcus hemolyticus* gets into the circulation at once, unless the germ is not very virulent, the patient is hopelessly lost from the start. Unless the woman's resisting powers, the army of defense, is thoroughly prepared to fight the enemy which has entered the system, little can be accomplished with drugs. Nevertheless, the parturient tract must be cleared and kept clean. Again it is different when the blood-vessel route becomes involved. Uterine irrigation in a uterus no longer the site of disease can not affect the progress of a thrombophlebitis. We know that many of the cases of streptococcic infection with extensive thrombophlebitis recover spontaneously. The life of the [illegible] is limited, absorption of the thrombi takes place, the caliber of the vessel is reestablished and the circulation restored

Dr Swithin Chandler Philadelphia It seems to me that it may clear the subject a little if we would endeavor to classify the varieties of septicemia In our institution in Philadelphia we have classified (due to my suggestion) the puerperal septicemias in three varieties the hemic, abdominal and pelvic In the hemic variety we have the invasion of the blood vessel system In these cases we find post mortem no septic material in the uterus In these cases it is our belief that there is no justification of operative interference In the abdominal cases there has been great abdominal swelling with pus from the pelvis up to the diaphragm It seemed as if every part of the abdominal cavity was covered with infection, and in these cases it is absolutely impossible to recommend any treatment except the vaccines, and in our experience they have been unsatisfactory In fifteen cases in which the vaccines were used they produced an exaggerated irritation of the kidneys and casts in the urine In one case, twelve hours after using the vaccines, the woman was taken very much worse, although I cannot say that the condition was the result of the treatment She vomited and purged and had the typical gastro enteritis accompanying these septic cases The pelvic variety, it seems to me, is the only form in which we may have an operation of any kind I believe that if you have an exudate there, it is better to leave it alone unless you have the formation of pus If you believe that the abscess will not break until the acuteness of the attack is over, it is infinitely better to wait and operate then

Dr John A McGlinn Philadelphia In going to the Medico Chirurgical Hospital in response to a call in regard to a case of puerperal sepsis I have no fixed idea of what I am going to do for that particular case It is a mistake to have a fixed routine to follow in every case The cases present so many very different phases clinically that we have to treat each case as it presents itself To my mind there are certain principles in puerperal sepsis which we should follow If the uterus is occupied with a putrient mass I believe it should be emptied at the earliest possible moment with the least possible trauma If there is an abscess opening into the posterior culdesac which can be opened without particular trouble, we should remove the pus I do not believe that as a general rule we should open the abdomen and remove the pus in these cases, following up the procedure by hysterectomy For localized infection I believe the Fowler position will tend to save many cases That and supportive treatment are methods which I believe we can adopt as sheet anchors but we have to vary the treatment to the individual case One point not sufficiently emphasized is that of etiology I do not believe that any man teaching obstetrics and gynecology at the present time advises that the puerperal uterus should be curetted with a sharp curet, but the general practitioner gets the idea from some place because many of them are doing it If the teachers would emphasize the fact that Nature is the best obstetrician and that a patient should be let alone unless there was some reason for interfering we would have fewer cases of puerperal infection and we would not have a discussion on how to cure, but rather on how to prevent

Dr C A Ritter Kansas City Mo The best barrier against infection is a healthy woman If the patient is constantly under care of the attendant during gestation that he may note and early combat the various danger signals as they arise strict antiseptic precautions had as to physician nurse patient bedding instruments and dressing during labor and puerperium vaginal examinations reduced to the minimum due care had in repairing lacerations infection would be rendered less frequent hence morbidity and mortality would be greatly reduced Too little attention is given to drainage The old idea that the patient should lie on her back for nine days is positively unphysiologic It is our custom after the first twenty four hours to put the patient in the semi Fowler position thereby securing constant drainage and favoring early involution for a soft uterus invites infection against which a hard and well-contracted organ is a barrier It is surprising to note in consultation how frequently and we might say ignorantly, the uterus is entered The first rise of temperature, a slight offensive discharge, is regarded as sufficient indication for the use of a curet, thus breaking down Nature's barriers and often converting local into general infection In the presence of infection, with retained products of conception, the uterus should be thoroughly emptied with the least possible traumatism and free drainage, coupled with supportive treatment, should be secured

Dr A D Willmoth, Louisville Most of the speakers have assumed that the infection was introduced through the vagina and uterus I believe a large percentage are attributable to disease in the tube at the time the woman is pregnant, over which we have no control If that is true, then we are not liable for the large percentage of cases indicated by the trend of the discussion From a medicolegal standpoint I believe we would be held responsible largely for all cases occurring under the care of the obstetrician if the infection enters through the vagina and uterus

We must differentiate between the sapremic and septicemic cases In one instance, as referred to by Dr Zinke, you have a nidus of infection which has to have time for decomposition before you get the chill, fever, etc In the other instance, you have the fatal condition starting immediately and nothing will be gained by interference with the uterus In the sapremic condition local treatment is indicated

Dr T J Watkins, Chicago We have heard a good many opinions about emptying the uterus Although these opinions are interesting, personal opinions are not very valuable unless they are backed up by some reason and observation and by careful reports of a number of cases To say that a man empties the uterus and the patient recovers does not mean much If it means anything it means only that the patient may have recovered as a result of the treatment or in spite of it We may divide these infections into purulent and non purulent If we have saprophytes alone the uterus should be emptied But how can we tell the condition present if investigators tell us that 40 per cent of the lochia in non febrile women during the first ten days contain streptococci? Bacteriologic examination, as has been pointed out, is uncertain Take it for granted that we do have a saprophytic infection and that we do not empty the uterus, what will happen? An infected uterus that contains retained tissue will soon empty itself It is not dangerous If we remove the retained tissues the woman s morbidity will be slightly shortened, but there will be no difference in the mortality Suppose, on the other hand that the sapremic infection is mixed with the saprophytic Many are of the opinion that streptococcic cases should not be touched We believe that one of the greatest dangers of manually emptying the uterus consists in dislodging septic thrombi causing embolic infection Nearly all the patients sent to us with "septic" infection have been curetted An extremely interesting experience in this line has been cited in regard to retained placenta in animals You may know that the cow is very liable to this complication and that 5 to 6 per cent have retained placenta These cases are left to Nature They are not touched although the umbilical cord is exposed to infection The placenta is almost always expelled on the ninth or tenth day These cows never die I never heard of but one, and that was one in which the veterinarian said the placenta should be removed and he removed it

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Childbirth After Pubiotomy—P Deus reports seventeen cases from the Berlin Charité maternity and compares them with others from the literature his material embracing sixty eight cases of delivery in women who had previously been pubiotomized He tabulates this material under various headings The possibility that the pubiotomy can modify conditions so as to facilitate future deliveries he says is abundantly proved by these experiences the pelvis may be permanently enlarged or it may stretch more readily in later childbirths These favorable results were evident in 31 8 per cent of the total cases an absolutely negative result is recorded in only 15 2 per cent The final instalment of his article appeared in the last *Gynaekologische Rundschau*, 1912 vi, 435

THE RADICAL TREATMENT OF ABORTION WITH OBSERVATIONS ON AND AN ANALYSIS OF 3,500 CASES *

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The term "abortion" has come to have both a social and a pathologic significance, and while this paper is intentionally occupied with the latter phase of the subject only, it is impossible to ignore entirely the social difficulties complicating the situation The truth of this will be sufficiently elucidated as we follow the analysis

There is a second class of difficulties meeting us at the outset of discussion due to the popular ignorance which neither reports nor treats abortions until after they have brought such evils in their train as may only too frequently be expected to follow neglect

These last might properly be termed educational difficulties, and to meet them a series of articles is needed for the public rather than for this present audience, in order to demonstrate how cumulative and progressive is the tendency of neglected abortions to produce future interrupted pregnancies and resulting uterine disease

That a woman with a past history of abortions or premature labors will be less likely to carry succeeding children to term is demonstrated by the fact that in the following record, for example, 26 68 per cent of the women having abortions or premature labors acknowledged previous abortions, more than 9 per cent of these had aborted more than twice previously, and in more than 1 per cent of the cases the present abortion was at least the sixth There were several patients with nine, ten and eleven previous abortions, and two women had reached their fourteenth and fifteenth interrupted pregnancies, respectively, without one living child That there were many women who could not give a very clear record and did not know how many times they had aborted, and sometimes did not know if they had or not, denotes a somewhat lamentable lack of intelligence — or in some cases, doubtless, of honesty — on their part, but this is not wholly unnatural when one considers that the expulsion of the ovum may seem to be merely a belated menstruation accompanied by a clot of blood the expelled ovum varying from the size of one's thumb nail to the size of two fists or more

The woman of the people who must be up and about her tasks in the midst of slatternly surroundings, with little or no privacy, and with no one to take her place if she ceases to work even for a day, frequently permits what she "guesses" might have been a "miscarriage' to pass without attention until its sequelæ force her to seek medical aid It must be said that while this is a more necessitous condition among the very poor, the women in comfortable circumstances, who do not have the same reason for lack of intelligence nor the same compulsion in their surroundings are not one whit more sensible of the dangers of abortion or more ready to seek aid for it when not compelled by alarming symptoms

For these reasons and others, many authorities account that a polyclinical record with careful questioning of the mothers is the only means of acquiring anything like an accurate knowledge of the proportion of abortions to the total number of births, and that even this must be constantly discounted by unintelligent and false testimony Necessarily, therefore statistics as published by hospitals and physicians vary enormously The Paris Maternite for instance, gives out a proportion of one abortion to every seven and nine-tenths births, the Russian maternités one to every ten births and Kyssner, one to every five and six-tenths The last is a polyclinical record Taussig,[1] who made a careful out patient investigation, estimated as high as one abortion to every two and three-tenths births

In the statistics previously given by Markoe,[2] of the staff of the New York Lying-In Hospital the proportion of abortions was only one in every 23 61, with a mortality of less than 2 per cent , but this was in a neighborhood where outside help would be sought if grave symptoms occurred

The word "abortion" has been subjected to somewhat artificial subdivisions, such as abortions and miscarriages — the latter signifying later instances of the same abnormality, early and late abortions, abortions and premature labor but for my particular purposes at present I shall not consider these subdivisions at all All cases of interrupted pregnancy coming within the first twenty-eight weeks will be included under one general term whose definition is, according to Taussig, 'the previable expulsion of the human ovum " After the twenty-eighth week "premature labor' is a properly substituted phrase for the interruption of pregnancy

The actual occurrence of abortion is scientifically an "abnormality of the pregnant uterus, ' and is a variation of a normal physiologic action but occurring too soon The etiology of fetal death is not to be confounded with that of abortion and must be studied separately, for while "it is the most frequent cause of abortion, it is the most difficult one to avoid ' There are predisposing factors in the condition of the mother causing her to abort which may generally be summed up as (1) increased sensitiveness to nerve stimulation, (2) a greater tendency to placental thrombosis, (3) a lessened resistance to expulsion While these are all justly considered as explanatory of the condition, they are not primary reasons, and we need still to know what temperamental accidental or pathologic causes underlie them

Immediate excitants to ovum expulsion may be of four kinds mechanical, thermal, toxic and nerve irritation, with fetal death as a fifth determinant Fetal death may be the result of a number of reasons congenital, nutritive, infectious or hyperpyretic but its occurrence acts in reality as a mechanical irritation from within producing expulsive contractions since the dead fetus is, as it were, "a foreign body ' in the uterus

Among these irritations producing ovum expulsion the first and fourth only with some indirect evidence as to the fifth, will be noticed in our analysis since the thermic and toxic irritants are not tabulated to any extent

Among mechanical irritations such as falls blows and strains, we had seventeen cases of falls one of a blow on the abdomen one injury from accident and one woman had lifted a heavy weight Psychic conditions causing abortion were cited in about four cases [illegible] accidental causes of abortion then all told in this list amounted to less than 1 per cent of the whole [illegible] therefore, is correctly accounted an insignificant cause by most authorities

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* *From the Service of the Lying In Hospital of the City of New York*

[1] Taussig Frederick J The Treatment and Prevention of Abortion

[2] Markoe James W Observations and Statistics [illegible] Labors

Uterine disease occasioning a greater tendency to placental thrombosis are among the frequent causes of abortion These are naturally to be found among multiparæ more often than among primiparæ, and abortions among primiparæ are notably less in lists recorded by nearly all writers Franz found less than 0 5 per cent among his 844 patients to be primiparæ

In our series there were 580 primiparæ, or 16 5 per cent — approximately one primipara to every six aborting women This becomes more exact when we divide the 3,500 cases into two groups with separate sets of factors The first group was composed of 1,781 neighborhood cases, mainly made up of women in their own homes subject to the ordinary accidents of pregnancy, and the second was the hospital group including many cases of criminal abortions, and almost all of the accidents and emergency cases The percentage of primiparæ for the latter group alone was 25 per cent, leaving the low percentage of 8 9 for the first group

We shall see that these two classes of cases fall apart in more ways than one during the process of analysis, but mainly in the mortality percentage The division into two groups affects the ratio of primiparæ in proportion to the criminal abortions Among these, primiparæ made up 35 per cent of the hospital group and only 16 per cent of the neighborhood group

The next interesting set of figures deals with the relation of the abortion to the month of gestation in which it falls In our series there were 1 320 cases between the sixth and twelfth week, 1,220 cases in the three months following this and 800 in the first six weeks of pregnancy These figures are given in their relative importance of frequency There were 140 unnoted cases, and some twenty cases of premature labor which do not properly come under our definition, "the non-viable expulsion of the human ovum"

Viability has not, as yet, been actually determined, but premature births to the limit of the twenty-fourth week have produced living children Ahlfeld believes the assumption of the non-viability before the end of the twenty-eighth week altogether too arbitrary, and Budin and Tarnier of the Paris Maternité show a number of living children even at the twenty-fourth week Budin claims 30 per cent with the use of incubators

The manner of the expulsion of the ovum varies with the anatomic changes of pregnancy, which may be divided into three groups of unequal time limit but covering the first two-thirds of the pregnant period The first period occupies the six weeks in which the ovum is implanted in the uterus and the second group of six weeks is that of placental formation Careful study of the marked increase of abortions within this latter period show that they are due to the nutritive changes of the fetus at this time, to circulatory disturbances in the uterus from the developing placenta and finally, the fact that this is the time when the pressure symptoms from malposition of the uterus would be felt

There is a fourth cause — syphilis — given by Thomas as a reason for the increased number of abortions in the second six weeks but if it is true as I believe that syphilis is liable to occasion fetal death then a later period of gestation would be more likely to be affected by this infection

During this second period — that of the most frequent abortions — there is a firmer adherence of the chorion to the uterine mucosa and with it a greater tendency to the retention of portions of the placenta after the ovum is expelled When the membranes have been ruptured by instruments to induce abortion the entire placenta may be left adherent or the decidua may come away in shred-like discharges after the abortion

It should always be borne in mind that the record of abortions for the first two months, even leaving out of account cases of criminal abortion, which certain authorities place at as high a figure as 50 per cent of all that occur, are harder to keep than those happening later, and, therefore, it is not surprising to find the number of abortions in the first six weeks the smallest of the three periods under consideration

In the first three months, 1,320 abortions occurred (60 5 per cent of the whole number), and the fetus was not found in 1,183 of these cases This was often due, no doubt to the fact that the physician was not called in until after the abortion had taken place, sometimes not until a long while after, but it gave additional reason for the needful curettage to avoid resulting conditions of sepsis and disease

In the entire series the ovum was expelled broken up in 547 instances, and unruptured in 480 (13 7 per cent)

Three stages, as for labor at term may be detected in abortions occurring between the twelfth and twenty-fourth weeks, that of cervical dilatation may be extended over several weeks followed by rupture of the membranes and the expulsion of the fetus While the placenta is more easily detached from the uterus in its later stages of development, it is expelled more slowly during premature deliveries than at term, because the uterine contractions are less powerful at the earlier period and the placenta, being somewhat larger than the fetus, may require greater dilatation of the cervix The uterine mucosa will also be found more closely connected with the ovum when inflammatory processes are present

The general analysis of the product in this series gives the following results fetus found macerated in fifty-two cases, spontaneously delivered 167 cases, manually extracted, eighty-six cases, instrumentally extracted, eighty-three cases, found and measured, 143 cases, multiple pregnancies and monstrosities, eight cases, not found, or unobserved, 2,961 cases It is worthy of observation here that the 2,961 cases of unfound products of abortion make up nearly 85 per cent of the whole number and point significantly to the fact that the uterus needs careful investigation after every case

Abortions are also due to an infection producing inflammatory conditions or syphilitic changes and finally to hydrops of connective tissue known as hydatid mole In my series, there were three cases of hydatidiform mole, fourteen of tumors, cysts, etc Syphilitic, tuberculous, nephritic or other cachectic symptoms are often accompanied by degeneration due to anemic infarcts producing albuminuria There were thirty-five such cases noted in my list, beside other degenerative results

Suppurative deciduitis may finally occasion sepsis a pathologic condition following the expulsion of the ovum It will be found in considering the mortality of the cases before us that sepsis of some kind is the most frequent cause of death

The total mortality of the 3,500 cases was sixty-six, or 1 8 per cent This is slightly less than the percentages of deaths from abortion given by careful authorities elsewhere 1 9 per cent is more usual Continuing the interesting subdivision of cases into two groups as we have done previously we shall observe that in the neighborhood subdivision there were only three deaths out of 1 781 cases, giving practically the negligible percentage of a little over 016 per cent On the other hand the percentage of deaths in 1 719 hospital cases was sixty-three, or 3 6 per cent

The number of induced abortions in the whole series was seventy-four or 2 11 per cent , in the hospital alone sixty-nine or 4 07 per cent In the hospital practice there were thirteen deaths from criminal abortion or 6 3 per cent of the mortality list

The remaining fifty-three deaths were from the following causes pneumonia, three septicemia with other complications, twenty-three toxemia of pregnancy six peritonitis with pyosalpinx and other complications, eight, pyemia four, staphylococcus infection with general peritonitis one, shock from hemorrhage one, asphyxia from chloroform one unknown three ruptured uterus one (this and placenta previa were combinations in several of the above cases) albuminuria one (this and nephritis were complications several times) ruptured tubes ectopic gestation and hysterectomy combined one

TREATMENT

The two symptoms which are always present in an abortion are pain and hemorrhage It is, nevertheless necessary to obtain a more complete history of the case since other pelvic conditions cannot always be differentiated from abortions without careful diagnosis A thorough vaginal and abdominal examination is therefore, necessary since the abdominal examination alone often gives only the rather negative results of a general tenderness

After the third or fourth month, an enlargement and softening of the uterus, with a partially dilated cervix, may be found on vaginal examination if the symptoms have persisted for some time, the cervical canal may even permit the finger to enter, and in such cases there can be no room for doubt

The character of the hemorrhage should be obtained, if possible By the previous analysis it has been shown that in most instances of early abortion the fetus is lost and therefore it is difficult to determine without this evidence how much may be remaining within the uterus if however, the cervix is dilated the bulging mass of membranes may usually be felt

PROPHYLAXIS

If the cervix should be tightly closed and the patient not bleeding profusely of course every effort should be made to prevent the further stages of abortion The patient should be put to bed the rectum emptied an opiate administered if necessary and absolute quiet should be ordered I prefer to use a combination of sulphonethylmenthanum and codein given almost to the point of stupefaction for quieting the patient In private practice especially by this means many initial symptoms of abortion may be checked and the pregnancy continued normally

It seems scarcely necessary to emphasize the fact that the surgical treatment of abortions should be as carefully aseptic as that for any surgical operation When a careful examination has been made and the physician finds that the abortion is incomplete or inevitable let him at once proceed to pack the uterus with iodoform gauze ¼ inch wide after having placed the woman in the lithotomy position with the usual preliminaries of thorough scrubbing and shaving of the external genitals The packing may be done with the aid of a bivalve speculum and a vulsellum forceps on the cervix using a uterine-dressing forceps or a sponge forceps to introduce the gauze If a clot or the fetus or the placenta is within the grasp of the cervix and ready to be expelled this is extracted with the sponge holder or with the finger[2] (Kosmak, p 34) The uterus and vagina should be packed as tightly as may be without using force, and the patient should be kept absolutely quiet for another twenty-four hours

After the first twenty-four hours of packing every patient should be prepared for a curettage since no matter how complete the expulsion may have appeared to be, the curet will bring down bits of tissue liable if not removed to adhere to the uterine wall These adhering tissues often produce inflammatory conditions and further uterine troubles, such as endometritis with attendant leukorrheas, and so forth It is of the utmost importance that there should be no focal point left within the uterus for the growth of pyogenic organisms

Complete anesthesia is desirable for the second stage of treatment in abortions If the cervix is not sufficiently dilated, this is accomplished with a Goodell dilator and the uterine interior is explored with a sponge forceps for the purpose of extracting any large masses of tissue within its grasp Careful curetting with a large sharp curet is then performed until the uterine cavity is clean It is not desirable to douche the interior of the uterus since the ostia of the tubes may be relaxed in the general muscular relaxation of the uterus and the douche water may find its way into the peritoneal cavity through the fallopian tubes Scrubbing out the uterus with a bit of gauze serves the double purpose of final cleansing and of stimulating contraction of the uterine muscles, so much so that the cervix may even demand a further application of the dilator before the packing is finished The entire uterine cavity is then wiped out first with dry gauze and then with tincture of iodin and an iodoform gauze drain reaching to the fundus inserted If obstinate hemorrhage persist the uterus may be packed, although this is usually unnecessary

This technic generally follows the course outlined by Kosmak of our staff in a recent article and with a few minor changes is that universally used by all the surgeons of the hospital Radical treatment in the above manner was given in 2,803 of our 3,500 cases Of these so treated there were only forty four who were not left in good or fair condition and thirty-eight who died eighty-two in all (2 9 per cent) Of these forty four twelve refused further examination and treatment, fifteen were sent for treatment elsewhere for such general causes as syphilis phlebitis pneumonia puerperal mania, etc six had tuberculosis, nine left against advice two had severe complications

SUMMARY

In summing up the entire situation the following points are evident

A Abortions are more common than is generally realized and the sequelae are frequently serious

B After every prophylactic measure has been tried and the abortion which has threatened has become inevitable the following statements seem to have been proved by the foregoing anal

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[2] Kosmak, G W [illegible]

1 Rarely, if ever, is an abortion complete Only in 13 7 per cent of the cases analyzed was there the slightest reason to believe that the ovum was expelled unbroken

2 All abortions should be investigated and the uterine cavity explored

3 When this is done according to the outlined method, we can show a mortality in all classes of cases of not more than 1 8 per cent and in ordinary cases, exclusive of accidents and malignant complications, of not more than 016 per cent

4 We can also show, which is perhaps most important of all, satisfactory results in 97 per cent of all cases so treated

Note.—In addition to the authorities previously cited the following may also be consulted

Edgar James Clifton The Premature Interruption of Pregnancy Medical Report New York Lying In Hosp 1897

Harrar James A The Results and Technic of the Lying In Hospital Outdoor Service in 4 500 Confinements

Medical Statistics of the Lying In Hospital for 1893 1900 1911

Lambert Samuel and Painter H Fever in the Puerperal Woman

Welch J E The Morbid Anatomy of the Toxemias of Pregnancy Bull Lying-In Hosp vi 72

Gushee Edward S Lacerations of the Cervix During Labor Based on the Study of 1 000 Cases in Primiparæ Bull Lying In Hosp vi 116

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ABSTRACT OF DISCUSSION

Dr J M Baldy Philadelphia This whole question of the treatment of abortion is to be viewed from two standpoints From the scientific standpoint I might be willing to grant that the paper is somewhat near the truth The statement is made that all abortions under four months are incomplete Those of us who have practiced in the slums in well appointed hospitals and otherwise know that that is not a correct statement The majority of these cases, unless brought on by criminal abortion—I mean coming on from inherent disease—are complete—perhaps not complete at the moment they are seen, but if handled properly they will be complete I am talking largely to the body politic of the medical profession and not the experts All women miscarry on an average of one in four and abortion is therefore not an unusual thing I would say not to use an instrument for abortion unless there was special indication for that interference Ordinarily I would say that unless a patient is septic I would never interfere, but wait and see the result whether there is an elevation of temperature or pulse or undue bleeding Of course, the patients that come to us septic and with temperature and pulse elevated are an entirely different class of cases than the ones I have been discussing There we are dealing with a pathologic condition and not what might be called a physiologic one The whole teaching of this eternal interference with abortion under any and all circumstances has done more harm to women and to the medical profession as a whole than almost anything else I know of in the way of teaching What an advanced specialist can do with safety and what is best for the ordinary family doctor to do are two entirely different things

Dr F J Taussig St Louis I have had occasion to look into the literature of this subject rather extensively Dr McPherson's paper is the first thoroughly systematic review of cases from any large American institution In regard to treatment I do not believe that he meant to say that the form of treatment that was adopted at the lying in hospital would be that which could be adopted by the profession at large and yet I feel that unless this is explicitly stated the profession at large would be tempted to adopt such a method I feel that particularly in obstetric matters we are inclined to recommend for cases that are usually treated by the general practitioner methods of treatment that require special training and technic I am thinking now more particularly of the treatment for eclampsia for which some have recommended vaginal cesarean section an operation that certainly could not be done by the average practitioner As to the treatment of abortion, I believe that in the long run we would do better to follow Dr Baldy's advice and teach the general practitioner to leave abortions alone, unless special complications ensue I would differ with Dr Baldy regarding the complications demanding interference It seems to me that the cases in which there is a large portion of placental tissue retained are the ones that demand operative treatment When, however, there is a septic condition I should hesitate very much to recommend operative interference by the practitioner

Dr A M Hayden, Evansville Ind The curet is the most dangerous instrument that can be put into the average practitioner's hands I do not believe it should be used in abortion under any circumstances Of course, if you have a pathologic condition a portion of the placenta remaining in the uterus undergoing decomposition, it is well enough to clean out the uterus, but that can be done without using the curet If a curet is used at all it should be a very dull one If the portions of placenta are sufficiently large, I take them away with placental forceps In the majority of such cases, if the uterus is packed aseptically as in a laparotomy with iodoform gauze, which is removed once in twenty four hours for two or three days, the uterus will be made thoroughly clean and aseptic This thing of meddling with abortions or interfering in such cases, unless there is special indication, I think does harm. The average patient will do better if let alone than if interfered with

Dr. Henry Schwarz, St Louis I believe the sharp [illegible] should not be used in recent cases of abortion Dr [illegible] son has particularly emphasized the fact that abortions are [illegible] to lead to pathologic conditions of the uterus, which will create the habit of abortion, and in these cases I have been in the habit of using the sharp curet six or eight weeks after the miscarriage has taken place for the purpose of insuring a thorough involution of the uterus

Dr Ross McPherson, New York In regard to Dr Baldy's statement that abortions are always complete and also in regard to his reference to the treatment practiced, I would say that 1,718 of our cases occurred in tenements, and that each case was taken care of by our staff, not by the more highly trained members Every case was examined by the pathologic laboratory and, in every instance detritus was removed which could not have been removed had the operation not been performed If Dr Baldy will recall the figures he will remember that the mortality was 0 016 per cent, which is a negligible death rate The cases occur in the worst districts of this country and the work is done by our interns under supervision but the surrounding conditions are as bad as they can be I do not believe that over 20 per cent of any abortions are ever complete and I still adhere to the theory that a great many of the endometritis conditions are due to untreated abortions I cannot change my opinion on that I would agree with Dr Taussig that it would be better for the general practitioner not to do curettage, but the general practitioner, in New York at least will do curettage and therefore it is better that he be trained to do it properly rather than as he so often does it now without an anesthetic and with no aseptic precautions Therefore I think it proper to bring forward such statements The danger of the curet, of course, is a question that comes up annually for argument The curet is dangerous and so is a knife or a pair of scissors but both are very efficacious if properly handled I believe that gauze packing will bring away much of the extraneous matter, but I am certain that repeated packing is fully as dangerous from the standpoint of infection as is a proper curettage if not more so

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Alcohol a Narcotic Poison—Careful study of the effects of alcohol on vital resistance, the phagocytic power of leukocytes heat production digestion, the heart's action, blood pressure the kidneys the liver the brain and the nervous system has led scientific observers to the conclusion that alcohol is a narcotic poison to be classed with such drugs as chloroform ether and chloral—P C Keister, in paper read before the Medical Society of Virginia

GYNECOLOGIC DISEASE IN THE INSANE

AND ITS RELATIONSHIP TO THE VARIOUS FORMS OF PSYCHOSES *

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The influence of gynecologic disease in the causation and prolongation of insanity among women in the past has been the subject of the most extravagant statements Even yet we hear, usually from those with limited experience, that most of these women can be cured by operation I am particularly struck with the lack of judgment displayed by some of the writers abroad Professor Bossi of Milan, who devised the well-known uterine dilator, recently published an article on the relationship of suicide to gynecologic disease based on half a dozen observations and many hypotheses Professor Schultze of Jena a month later agreed with Bossi's assumption that a large percentage of psychoses in women could be cured by operation He referred to the work of Hobbs of Canada, but seemed entirely ignorant of the important work of Manton of Detroit, and Leroy Broun of New York It is primarily to Manton and Broun that we owe our present knowledge of this subject Their work has extended over a long period of years and is characterized by carefully drawn, conservative conclusions It was primarily concerned with the results of operative treatment and the character of psychosis most favorably influenced thereby

A question of perhaps equal importance has as yet hardly been touched on, it is that of the percentage and exact character of gynecologic lesions found in insane women and above all, the relationship of such lesions to the different forms of insanity

EXAMINATIONS

As gynecologist to the St Louis City Sanitarium I have examined personally, during the past year, 537 out of about 900 women inmates with a view to making a complete gynecologic diagnosis The violent patients and those suffering from paresis were in great part omitted, but otherwise patients were taken in regular order without selection The patients could usually be quieted easily some here and there — approximately one in ten — would offer resistence The attendants were instructed to watch the patients for a day or two after examination to note if the psychosis was in any way unfavorably influenced by the examination Only in very rare instances was a temporarily increased excitability observed

Patients examined in the observation ward of the St Louis City Hospital before being transferred to the sanitarium were usually very difficult to manage and the gynecologic examination was most unsatisfactory Even after they had been at the sanitarium for some time it was by no means easy to make a complete bimanual examination For this reason I preferred to make all the examinations personally while Dr Keim and the nurse reassured and quieted the patient By such means I was often enabled to obtain the necessary relaxation, when it seemed almost impossible to accomplish it otherwise Let me say at this point that the report of Dr J K Mitchell of Philadelphia on postoperative and postanesthetic insanity convinced me that only in cases of emergency would an anesthetic for diagnostic purposes be justified so far I have not employed it In several instances when the patient at first resisted, I was able later as the psychosis improved, to obtain complete relaxation

RESULTS OF EXAMINATIONS

As a result of these examinations, 252 of the 537 women were found to have some lesion in the pelvic organs sufficient either to cause symptoms or to be in a position to cause them sooner or later in their lives Minor abnormalities such as are found in practically every woman (small cervical tears tears of the perineal body only slight discharge movable retroversions of the first degree), I classified as normal In about one fifth of the women showing gynecologic disease more than one lesion was found There were altogether 319 pathologic conditions in the 252 women (Table 1)

TABLE 1—CLASSIFICATION OF GYNECOLOGIC DISEASES FOUND IN INSANE WOMEN 319 PATHOLOGIC CONDITIONS IN 252 PATIENTS SO DISEASED

Retroverted uterus	87	Polyp of urethra	4
Anteflexion retroversion of uterus	22	Urethritis	[illegible]
Atrophy of uterus	8	Vaginitis	1
Laceration of cervix	13	Endocervicitis	[illegible]
Relaxed pelvic floor	52	Endometritis	[illegible]
Markedly relaxed abdomen	4	Salpingitis	[illegible]
Prolapsed uterus	18	Tubo-ovarian mass	
Prolapsed urethra	1	Parametritis	[illegible]
Prolapsed rectum	3	Condyloma acuminata	1
Fibroid uterus	20	Bartholinian cyst	1
Ovarian cyst	[illegible]	Pruritus vulvæ	1
Cystic ovary	2	Postoperative condition	13
Polyp of cervix	8		319

Arrest of development 20
Tears and relaxations 86
Tumors 23
Polyps 12
Inflammations 63

It is of particular interest to note the character of pelvic disorder prevalent among these insane women Cervical lacerations were seen in only about 5 per cent of the diseased women Serious inflammatory trouble was only rarely found Not a single case of malignant disease appeared in this number Other tumors were of about average frequency On the other hand mild chronic inflammatory trouble was frequent retroversions of the uterus were present in a large proportion and above all, relaxations of the pelvic floor and abdominal walls were very common To what degree the prolonged institutional life of many of these patients together with its attendant constipation, was responsible for this frequency of relaxation I could not say but the assumption that it was responsible seems justifiable Polyp of the cervix or urethra were also frequent out of all proportion to the average Conditions indicative of an arrest of development of the genital tract were found in over 10 per cent of the diseased women

ANALYSIS

The percentage of women with gynecologic disorder as shown in Table 2 is usually given as much higher than the 4[illegible] per cent figured in the present report It seems probable that gynecologic disease is only slightly more common in insane women than in the sane The point of real interest is the distribution of the lesions among the different forms of insanity

In three of the important groups — senile dementia, terminal dementia and paranoia — the percentage of women with pelvic trouble was [illegible] dementia praecox about one [illegible] eased About two-third classed, and in the manic-depressive group the percentage of women with gynecologic lesions was as high as 74 per cent. The psychic diagnoses were carefully revised by the superintendent, Dr. Johns, to whom I wish here to express my thanks. Considering the large number of patients examined, it could hardly be mere chance that such a striking difference should appear between the women in the manic-depressive group and those in some of the other groups.

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* The work of the present report was done with the collaboration of Dr J P Keim Assistant Resident of the St Louis City Sanitarium

* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty-Third Annual Session held at Atlantic City, June 1912

Analysis of these examinations according to the character of disease associated with the particular psychosis brought out several additional points. The terminal dements showing only 36 per cent. abnormal had a proportionately large number of postoperative cases. Among the senile dements I found the increased number of relaxations that might be expected in old women. The dementia præcox patients showed an unusually large number with arrest of development. That there is some correlationship between the gynecologic lesion and the form of the psychosis seems more than probable. In the group of imbeciles arrest of development was also more frequent than normal. Of special significance however was the frequency of inflammatory trouble and its associated misplacements of the uterus in the manic-depressive group. Since the psychic diagnosis made by the hospital authorities was only recorded after all the gynecologic findings had been tabulated it came as a complete surprise that there should be such a definite relationship between certain psychoses and certain gynecologic disorders.

TABLE 2.—PERCENTAGE OF PELVIC DISORDERS IN INSANE WOMEN

Physician Reporting	Number Examined	Diseased	Percentage Diseased
Manton	100	81	81
Lawrence	100	84	84
Hobbs	220	188	85
Claus	554		15
Danillo	200	138	69
Hall	154		18

TABLE 3.—REPORT OF 537 GYNECOLOGIC EXAMINATIONS OF INSANE WOMEN CLASSIFIED ACCORDING TO PSYCHOSIS

Psychosis	Total	Gyneco logic Disease	Normal	Percent age Diseased
Terminal dementia	82	30	52	36
Paresis	5	3	2	
Senile dementia	106	30	76	28
Dementia præcox	92	47	45	51
Manic depressive insanity	61	45	16	74
Imbecility	52	33	19	63
Paranoia	50	18	32	36
Melancholia	20	8	12	40
Toxic insanity	8	5	3	
Hysterical insanity	4	3	1	
Postapoplectic insanity	3	0	3	
Epileptic insanity	18	6	12	33
Unclassified	36	24	12	
Total	537	252	285	47

TREATMENT

Although these examinations showed that almost one-half of the insane patients had some pathologic condition of the genital tract it by no means follows that all of them required treatment. It was not always an easy matter to determine whether a given condition was giving rise to symptoms but in all doubtful cases the attendant was instructed to watch the patient closely for several weeks. As nearly as could be determined 141 out of the 252 women required some form of gynecologic treatment. Forty-seven were put on conservative measures such as douches, tampons, pessaries, etc., and in the remainder the question of operative relief came up for decision. Before any patient was subjected to an operation, the following precautions were taken: (1) Consent was obtained from the relatives; (2) the patient was put in the best possible psychic condition; (3) the ailment must be clearly giving rise to symptoms of moderate severity or be in itself a danger to the individual.

Ninety-four patients in this series belonged to the possibly operative class, or 17 per cent. of the total number of patients examined. Probably not over two-thirds of this number will eventually require operation or submit to operative procedures. So far, only seventeen have been subjected to such treatment. One operation was an emergency one for double-sided suppurating ovarian cysts; the rest were undertaken only after the patient was in a favorable mental condition. Although the number of operations is as yet too small to justify any conclusions it is interesting to see that all the patients showed physical improvement and some mental improvement as well and that none showed any untoward effects either physically or mentally. Whenever possible it was my aim, when doing a laparotomy, to keep a portion of the ovaries intact, and at the same time to resect a portion of the uterine end of the tubes. My opposition to double ovariotomy is based partly on the observations of such men as Manton, Raimann and Broun, partly on the history of the twenty-two postoperative psychoses in my own series. Over two-thirds of these women had had a double ovariotomy done on them; in some it had clearly been the exciting factor in the psychosis, in others it had made the condition worse, in none had it been beneficial.

My reason for resecting the tubes whenever the abdomen was opened for any other cause, provided always that the consent of the relatives was obtained, is based on several sad instances in which imbeciles and insane women became pregnant during lucid intervals while away from the institution and gave birth to imbecile or defective children.

In this connection it is interesting that out of 313 women in this series of examinations 186 were married and 127 were single. In ninety married women tabulated for this purpose there had been 216 children, an average of 2.4 child per mother. When we consider the dominant part played by heredity in the causation of insanity the question naturally arises whether the state should allow such propagation of the insane to continue indefinitely. With the growth of eugenics as a science this matter is bound soon to receive proper attention. I believe the time will come very soon when the sterilization of the insane will be considered necessary for the progress of the human race.

TABLE 4.—TABULATION OF AGE OF 107 INSANE WOMEN AT ONSET OF PSYCHOSIS

No.	Age	Per Cent.	No.	Age	Per Cent.	No.	Age	Per Cent.
4	*		34	30-40		11	12-18†	10
14	20		11	40-50		11	42-52‡	10
13	20-30		9	50-60			20-40	60

* Congenital. † Puberty. ‡ Menopause.

A brief additional study was made of the relationship of the age of the patient to the onset of her psychosis

Table 4 shows that out of 107 women, about 10 per cent developed their psychosis at the time of puberty, 10 per cent at the time of the menopause and over 60 per cent between the ages of 20 and 40 Only here and there was the psychosis aggravated during menstruation or the direct result of a foregoing pregnancy

OPERATION IN MANIC-DEPRESSIVE INSANITY

Let us return for a minute to the question of operative treatment for these insane women In Table 5 is a summary of some of the operative work done so far While the percentage of mental recoveries is not very great in the more careful statistics of such men as Broun, there can be no doubt that the operative measures are absolutely justified merely by the bodily welfare of the patients The most important fact brought out by Leroy Broun's last report is the fact that a large percentage of the women who recovered their normal mental condition were of the manic-depressive group The exact numbers as stated by Broun are fifty-one out of seventy-two, or about 70 per cent

TABLE 5—OPERATIONS AND RESULTS ON MENTAL CONDITIONS

Operator	Number	Mortality Per Cent	Recovered Per Cent	Improved Per Cent	Unchanged Per Cent	Worse Per Cent
Hobbs	173	2	42	24	32	0
Mayo	60	0		16		0
Angelucci	109					21
Henry	28	3		57	40	0
Rohe.	34	0	41	15	44	0
Broun	242	2	18			0
Taussig	17	0	17	17	66	0

We have therefore three facts pointing to some sort of relationship between gynecologic disease and manic-depressive insanity They are

1 The decidedly greater frequency of gynecologic disease in this form of insanity—74 per cent as compared with average of 47 per cent

2 The large proportion of chronic inflammatory conditions of the genital tract in this form of insanity

3 The proportionately large percentage of mental recoveries after gynecologic operations done on women having this form of insanity

I conclude, therefore, that in manic depressive insanity every patient should be subjected to a gynecologic examination and that when a definite lesion is found this should be corrected either by local or operative measures

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ABSTRACT OF DISCUSSION

Dr T M T McKennan, Pittsburgh In the psychopathic department of the hospital we have about 100 women all the time and it would seem desirable—in fact a duty—on the entrance of a woman patient to have every form of examination gone through with The plan of procedure that we adopt is about as follows The history is taken in the receiving ward and then all the physical examinations are gone into by competent men—the internist and the psychiatrist—and then the various laboratory tests are made In a very small percentage of cases it is possible to have a gynecologic examination made In the acute cases it is rare to have such examination unless the patient is subjected to anesthesia and as Dr Taussig has said, it is advisable to do this but rarely We have really formed no definite conclusions although this matter has been going on for several years The dementia praecox patients do not show a large number of disturbances except in the matter of undeveloped uteri This is in harmony with the other anatomic stigmata in these cases The general hospitals for the insane in many of the states have gynecologists associated with them In Pennsylvania all of the state hospitals have a woman resident physician who is supposed to do this work Unfortunately, I believe that in most institutions this work is rather neglected and it comes down to the question of these chronic cases, many of them cases of dementia præcox, and the senile type in which it is thought hardly worth while to examine unless actual attention is called to the case

Our gynecologist Dr Huggins has operated in quite a number of chronic cases I am not competent to speak on the matter except from the psychic standpoint So far as our observation goes, operation is borne badly and the postoperative care is very difficult especially if they show maniacal tendencies The subject is one to be approached from the scientific standpoint Institutions should have a competent gynecologist associated with the work It is difficult to avoid wrong conclusions Recovery in an individual especially in this class of cases, does not indicate that the means used have been actually productive of recovery This is especially true of the manic depressives among whom the ordinary recovery rate is from 60 to 85 per cent

Dr C O Kepler, Boston About a year ago I had a paper published in the *American Journal of Obstetrics and Gynecology* on the subject of complete procidentia in the nulliparous woman, with special reference to physical degeneration I was surprised to find how many cases there were of congenital stigmata associated with mental perversions I found that the physical stigmata that were not gynecologic included hare lip, cleft palate spina bifida and various stigmata of that sort, also umbilical hernia and obstetric stigmata I also found cases of congenital absence of perineum atresia and absence of the vagina and the uterus and its appendages also in quite a large number of cases complete absence of the pelvic floor and many cases of relaxation In another case that was not congenital there was femoral hernia, associated with procidentia This is a true hernia in Douglas' pouch Of the complete procidentia in the nulliparous woman I was able to collect in the literature reports of seventy cases Through the kindness of gynecologists and alienists in this country and Europe I was able to collect about eighty more cases of complete procidentia associated with all forms of mental perversion from a low grade mentality to complete imbecility, even cretinism and idiocy and from hysteria to all forms of mania

Dr M A Cohn, Brooklyn Only last week I saw a case of nymphomania in my office The woman was bordering on insanity, and I am almost sure that sooner or later she will land in an insane hospital

Dr Walter P Manton, Detroit From my experience I doubt whether pelvic disorders ever cause insanity There is no doubt whatever, however that pelvic conditions—foci acting as points of irritation—do keep up the insane condition and add more or less to its severity I can also say that I have never yet seen an insane patient cured by surgery *per se* We have had many cases of so called cures and there is no doubt that surgical procedures in their proper place do act as factors in helping to restore the disordered mind but I doubt very much whether surgical operations alone on the insane have a curative effect The statistics of Dr Taussig as to the frequency of pelvic disorders among the insane correspond very closely with mine, about 50 per cent in unselected cases Some years ago in a series of unselected cases at the Pontiac State Hospital I found the frequency to be about as stated

An anesthetic is absolutely necessary in the successful examination of certain patients I have not yet seen any evil effects from the anesthetic used either for examination or operation Some years ago I looked into the question of the legality of operations on the insane and found that such operations were not permissible unless the consent of the friends of the patient was obtained or in the absence of friends in the instance of state charges of the superintendent Relative to the large number of cases of manic depressive insanity and dementia præcox in which pelvic disorders were found I think that dementia præcox occurs roughly speaking in something like 10 per cent and manic depressive insanity in perhaps the largest proportion of all cases of insanity in institutions This being so naturally we should expect to find the large number of pelvic and abdominal conditions in the insane associated with these two mental disorders

Dr Guy L Hunner Baltimore I have a patient in the hospital who brings out very strongly the importance of knowing about what we ought to expect from operating on patients of this class A very prominent woman of Washington consulted me about two months ago, saying that her family physician, whom I know to be a very good man, had told her that she must be operated on for her relaxed outlet and partial descensus of the uterus She is 30 years of age, has three children, and has had increasing trouble after her menstrual epoch in reference to mental disturbances, almost suicidal Were it not for her children she feels that she would take her life The family history is very bad which seems to me to have more to do with her condition than the relaxed outlet and partial descensus which would be seen in almost any woman who had had three children To test the question of whether a supportive operation would help her, I had her wear a pessary for six weeks or two months, but it seemed to do absolutely no good I operated on her the day I came down here because she had the idea firmly fixed in her mind that she was not going to get well until operation was done and because she had some little trouble in the pelvis I had urged that she wear the pessary for the summer, but she did not agree to this It is only by having many statistics, such as Dr Taussig has, that we shall be able to draw very definite conclusions concerning the value of operating on patients suffering from this sort of trouble The cases that perplex me most are those of so called epilepsy—menstrual epilepsy In almost every case the family and family physician are convinced that the attacks occur at or near the menstrual period Practically they occur at almost any time I have operated on four or five patients, explaining thoroughly beforehand that I had no faith in the results and have had but one good result in removing the ovaries That case was the only one in which the epilepsy did occur at the time of the menstrual period The patient is well and is most grateful for the outcome I should think that twelve cases of polypi eight of the cervix and four of the urethra in 500 cases not a very high percentage It seems to me that about 1 per cent of all office patients have urethral polypi and eight out of 500 have cervical polypi The urethral caruncle is almost one of the most painful conditions a woman can have In regard to the inflammatory conditions in these maniacal depressive cases I wonder if it is not just the class of patients who have had abortions performed and have done such things during pregnancy that would bring on inflammatory disease, and whether the gynecologic condition was not subsequent to the mental rather than the other way about

Dr F J Taussig St Louis In nymphomania and epilepsy it seems to me we may have gynecologic symptoms, but not gynecologic disease as a rule Six out of eighteen epileptic insanities in my series showed only slight gynecologic abnormality and while I have not tabulated the nymphomania cases I recall three or four cases in which there was absolutely nothing wrong with the genital organs Particularly in nymphomania we must consider the eroticism as a part of the mental condition and not ascribe these symptoms to gynecologic lesions Dr Manton stated that gynecologic disease does not directly cause insanity I am quite in accord with that view but it seems to me that we must consider the fact that in women gynecologic disease is the most frequent form of irritant acting as a factor in the production of insanity If we can correct that irritant, we may perhaps prevent a recurrence of the insanity The patient may not be assisted in getting over her manic depressive condition by the gynecologic treatment or operation but at any rate she is not so liable to recurrence after the removal of the gynecologic irritant When a laparotomy is indicated for other reasons I think we are justified in doing a simple sterilizing operation on the tubes in a woman who is insane Knowing the tremendous factor of heredity in the causation of insanity we are merely doing our duty if we prevent more insane being born into the world Several instances in which imbeciles were allowed to leave institutions and had children who in turn were imbeciles have particularly led me to this conclusion The operation of sterilization of the tubes is such a simple one that I believe it has practically no mortality when done in conjunction with other operative work

THE EPIDEMIC OF SORE THROAT IN CHICAGO

A PRELIMINARY REPORT

P G HEINEMANN
CHICAGO

During the past winter there was an extensive epidemic of sore throat in Chicago the main features of which have been fully described by Capps and Miller[1] It is, therefore, needless to repeat in detail the data published by these authors

Capps and Miller investigated conditions in eight hospitals, two of which were using milk from a certain dairy, designated Dairy X In two of these hospitals the morbidity among the nurses was respectively 48 per cent (H) and 53 per cent (M R) The other six hospitals were not using milk from Dairy X and had a morbidity of less than 10 per cent A canvass of 584 households was made by Capps and Miller with assistance from the Department of Health of the City of Chicago Of this number 153 were attacked 51 per cent of households using milk from Dairy X were affected, while 7 2 per cent of households using other milk-supplies were affected Employees of the health department investigated conditions in B, where one of the pasteurizing plants of Dairy X is located They also visited a large number of farms contributing milk to Dairy X, with the object of finding whether or not cases of sore throat existed among the milkers and their families or cases of mastitis among the cattle

I have made no attempt to duplicate the data reported by Capps and Miller, but have made some inquiries in other directions, covering the following points

1 The sources of supplies of Dairy X, the distribution of their milk in Chicago and the efficiency of the pasteurizing machines

2 The conditions in all hospitals and public institutions using milk from Dairy X

3 The conditions in certain households using milk from Dairy X

I THE SOURCES OF SUPPLIES OF DAIRY X, THE DISTRIBUTION OF THEIR MILK IN CHICAGO AND THE EFFICIENCY OF THE PASTEURIZING MACHINES

Dairy X obtains supplies from two localities, which may be designated as G and B At G the milk is obtained from 122 farmers The milk is pasteurized by the continuous process at a temperature of 162 F The time of exposure of the milk to this temperature is less than one minute No milk is bottled at this plant One hundred to 200 cans are shipped to Chicago daily, according to the demand The balance of the milk is made into butter and cottage cheese There are six employees at this plant all of whom were in good health and had not suffered from sore throat during the winter Physicians controlling the bulk of the practice among the farmers contributing to this dairy stated that they had not seen a single case of sore throat among the farmers

At B the milk is obtained from eighty-eight farmers and from a dairy located a few miles from B All bottled milk and cream sold in Chicago by Dairy X is obtained from the pasteurizing plant located at B The milk is pasteurized by the continuous process at 160 F The temperature of the milk in the pasteurizer is recorded automatically in red ink on a chart On exam ming the temperature records for December and January, it was noticed that there were numerous deviations from 160 F.

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[1] The Journal A M A June 15 1912 p 1848.

Inquiry as to the cause of these deviations brought out the fact that the steam is shut off whenever the process has to be interrupted. The bottle-washing machine used up to Jan. 1, 1912, was not working well and it happened that the pasteurizing machine had to be shut off temporarily whenever there were not bottles enough to work with. A new machine has been substituted for the old one so that the supply of clean bottles was adequate after January 1.

It happens also that the producers do not arrive in time with their supplies so that the pasteurizer is stopped sometimes for this reason. Whenever steam is shut off, the outflow pipe from the pasteurizer is closed, so that no milk which has not been heated to the required temperature can leave. The records on the charts, therefore, do not necessarily indicate that milk at any time had not been heated to 160 F.

The bacterial efficiency of the process is apparently good. Counts made by the department of health and by the dairy's own chemist show that the pasteurized milk in bottles at the plant did not contain more than 25,000 bacteria, and not more than 50,000 in Chicago.

II. THE CONDITIONS IN HOSPITALS AND PUBLIC INSTITUTIONS

I have made inquiries at four hospitals using milk from Dairy X, not including hospitals M. R. and H., which were investigated by Capps and Miller. In these four hospitals the morbidity among nurses and other employees was: A., 9 per cent.; N. C., 29 per cent.; W., 26 per cent., and C., no cases. Hospitals N. C. and C. obtain milk from Dairy X in bottles only. Hospitals A., W., M. R. and H. obtain milk from Dairy X in cans only. Cases of septic sore throat did not occur in Hospital A, while in N. C., and W. about one-third of the cases were septic. In four public institutions with more than 650 inmates, all of which were using milk from Dairy X, a number of cases of ordinary sore throat occurred during the winter months. The cases of septic sore throat were about 2 per cent.

Hospitals M. R. H. A. and W. and the four public institutions receive milk in cans only. The sealed cans are delivered by three drivers, who place the cans in the hospitals and break the seals. The dipping of the milk out of the cans in the hospitals is done by employees of the hospitals. Inquiries among the drivers showed that they had not suffered from sore throat during the winter and, so far as could be learned, had not been in contact with persons suffering from sore throat, either in their families or among their friends. Since only two out of six hospitals using milk from Dairy X had an unusual amount of sore throat among the employees, it seems reasonable to assume that infection of the milk, so far as milk was responsible, took place after delivery at the hospitals.

The source of the milk delivered in cans to hospitals and public institutions has some bearing on this assumption. Hospitals A. and H. obtained cans from G. only during the winter months. The other hospitals obtained milk from G. from Dec. 2 to 8, 1911, December 10 to 15, Dec. 17, 1911, to Jan. 6, 1912, January 8 to 16, January 18 to 19, and January 21 to 26. During the period of the heighth of the epidemic, namely, from Dec. 25 to 31, 1911, all hospitals and public institutions obtained milk from G. only, and no source of infection of this milk has been detected.

III. CONDITIONS IN HOUSEHOLDS USING MILK FROM DAIRY X

All bottled milk sold by Dairy X in Chicago is obtained from the pasteurizing plant at B. Three carloads are shipped daily. Two of these carloads are distributed on the north and south sides of Chicago. The third carload is distributed in a suburb near the northern limits of the city, which will be designated R.

Since Capps and Miller's investigations covered only the first two carloads, it was thought expedient to investigate also conditions in R. I visited a large number of physicians practicing in this locality, who gave me the names and addresses of patients, with dates and histories. I gathered in all records of 105 cases in seventy-eight households. After this list was secured the milk-supplies of the households were ascertained, thus eliminating the personal equation; 29 per cent. of the households were found to be users of milk from Dairy X. Since this dairy supplies at least one-third of the milk consumed in R, it is clear that users of this milk were not affected to a higher degree than users of other supplies.

The result of my investigation in R is thus in some respects different from the results obtained in other localities by Capps and Miller. The cause of the epidemic, therefore, may be attributed to a partial infection of the milk-supply rather than to infection of the whole. This condition is possible when infection takes place after pasteurization. In my judgment, infection from mastitis streptococci is not probable. It has not been definitely shown that mastitis streptococci are infectious for man. On the contrary, many observers consider mastitis streptococci avirulent for man. Early work on this subject is contradictory. Exhaustive recent publications[2] have shown that mastitis streptococci are probably not virulent for man and that their infectiousness has been exaggerated by earlier workers. If streptococci from milkers should have gained access to the milk, there is every chance of their having been destroyed by pasteurization, as it has been shown that the milk of Dairy X has apparently been uniformly pasteurized.

Infection of bottles after pasteurization by a germ-carrier is conceivable. There was, during the winter, an epidemic of sore throat of unusual severity in B. Among the twenty-five employees of Dairy X, five suffered. Among these five there was one case of septic sore throat. The patient handled the bottles previous to passing them on to the filling machine. He worked at the dairy from December 18 to 23, while suffering from swelling of the cervical glands. He was operated on in a Chicago hospital for drainage of the cervical glands. The man, by coughing or by contact, may have infected some of the bottles.

CONCLUSIONS

1. An epidemic of sore throat was prevalent in Chicago during the winter of 1911-1912, the primary cause of which remains undetermined.

2. Of six hospitals using milk from Dairy X two had many cases of septic sore throat; the other four did not.

3. In four public institutions using milk from Dairy X ordinary sore throat was common but septic cases were relatively rare.

4. The hospitals and public institutions received milk in cans and no infection of the milk could be traced

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[2] Schultz: München. med. Wchnschr., 1907, p. 1167. [illegible] Ztschr. f. Hyg., 1912, lxx, 44[illegible] [illegible] Centralbl. f. [illegible] 1912, lxiii, 15[illegible]

5 Households using milk from Dairy X in some districts of Chicago suffered severely Households using milk from Dairy X in other districts did not suffer out of proportion

6 Since the apparent infectiousness of bottled milk from Dairy X was intermittent, the solution must be looked for in partial infection of the bottles

7 The bottle-supply of Dairy X may have been partially infected by an employee suffering from sore throat

5756 Monroe Avenue

FAMILY HEMATOPORPHYRINURIA AND ITS ASSOCIATION WITH CHRONIC GASTRODUODENAL DILATATION, PECULIAR FITS AND ACUTE POLYNEURITIS

A PRELIMINARY REPORT [*]

LEWELLYS F BARKER, M D
BALTIMORE
AND
W L ESTES, JR
SOUTH BETHLEHEM, PA

We desire to give in this paper an epitome of a report in preparation on a peculiar syndrome which we have recently had the opportunity of studying

Patient—In the spring of 1910, a patient, an unmarried woman of 18, was referred to one of us for study by Dr Ira J McCurdy, of Frederick Dr McCurdy reported that for more than a year the patient had been passing urine of a very dark color, that she had been losing weight without apparent cause, and that during the illness she had suffered from recurring attacks of nausea and vomiting with some pain in the lower abdomen on the right side She had also complained of some vertigo, severe enough to cause her to fall on several occasions, but never associated with loss of consciousness

Family History—The family history is of great interest One sister aged 18, died four years ago after an illness of nine months her symptoms were very similar to those of the patient studied by us Another sister, aged 22, is now suffering in the same way—is passing urine of port wine color, has gastro intestinal disturbances and has had pain in the right iliac fossa The patient's mother and her maternal grandmother suffered from recurring attacks of nausea and vomiting with constipation and epigastric pain The urine is said to have changed color during the attacks in the grandmother's case but the mother had never noticed any peculiarity in her urine The father has an enlarged thyroid, distinct exophthalmos and positive Stellwag, Dalrymple and von Graefe signs

Examination—The patient was admitted to Ward G of the Johns Hopkins Hospital in April, 1910, for thorough study The findings, on admission, in brief, were A fairly nourished girl not especially anemic Osseous system rather underdeveloped Hands clammy, skin otherwise dry Tonsils hypertrophic Thickened thyroid isthmus No exophthalmos Eye grounds hyperemic otherwise negative Slight general enlargement of lymph nodes Thymus dulness positive Slight general bronchitis lungs (otherwise) and heart negative Blood pressure 90 (later this rose to 150) Abdomen held rather tense tenderness in cecal region Spleen and liver of normal size No tremor Sensation and reflexes normal Temperature and pulse rate not elevated Wassermann negative Calmette's tuberculin test negative Pelvic examination negative except for backward displacement of uterus Stomach juice after test breakfast 40 c c, much mucus, free hydrochloric acid, 10, total acidity, 40, no blood or lactic acid present Examination of blood red blood cells, 4 188,000, white blood-cells, 6,400, hemoglobin, 80 per cent Differential count practically normal Coagulation time, six minutes Feces normal Bile present Test for occult blood negative No parasites The urine was free from albumin and sugar, but was often of port wine color and contained large quantities of hematoporphyrin (spectroscopic demonstration)

Course—A few days after admission the patient began to have slight fever (temperature from 99 8 to 100 F), marked tachycardia (pulse rate 104 to 140), a leukocytosis of over 20,000, and slightly accelerated respiration She became restless and irritable and complained of weakness, total lack of appetite, pain in the precordial region, and numbness and tingling in the extremities The thyroid became larger and was tender, Dalrymple's sign and von Graefe's sign appeared No bruit or thrill over thyroid May 10 she had a convulsion, which lasted about two minutes, during which she became cyanosed and bit her tongue She had altogether nine convulsive seizures on that day At the beginning of each fit the eyes deviated to the right or to the left, after which the eyes were rolled up, there were nystagmus, cyanosis and general clonic twitchings throughout the body The twitchings were usually bilateral, but occasionally only one half of the body was involved The patient was delirious, and urine was voided in the bed repeatedly during the day The fingers were kept clenched with the thumbs turned in Trousseau and Chvostek tests were negative During these attacks there was no hematoporphyrin in the urine, acetone was present, test for diacetic acid was negative Temperature ranged from 99 to 101 8 F, pulse rate from 120 to 156 respirations from twenty two to thirty eight The symptoms suggested strongly an acute intoxication of some sort and acute thyreopathy and parathyreopathy were considered The fits soon ceased, the patient again became rational, the pulse rate fell (112 to 136), the eyes grew less prominent, the thyroid gland decreased in size, the leukocytes fell to 8,840 The patient complained bitterly of abdominal pain and of pains "all over" the body, including the arms and legs

May 18 she had another series of fits, this time beginning with clonic spasms in the orbicularis oris muscle, soon succeeded by tonic spasm of the bodily musculature (opisthotonos), the fists were clenched, but neither hands nor feet assumed the typical position of tetany, and Chvostek's and Trousseau's signs could not be elicited The patient was again irrational between the fits, and unconscious during them Pulse rate was 136 Deep reflexes were rather sluggish, though they could be elicited Thyroid was again swollen Leukocyte count was 8,800 There was fruity odor to breath, but neither acetone nor diacetic acid was demonstrable in the urine A solution of calcium chlorid was given intravenously

After this series of fits passed off, the patient again complained of general pains throughout the body, those about the ankles were especially severe There was slight pitting on pressure about the malleoli, but no redness Leukocyte count, 10,400

Operation—May 26 she had a few more fits The pains persisted, and the skin of the lower extremities became hyperesthetic During the next few days the pain increased in the right lower abdomen and, at times a small mass was palpable there Exploratory laparotomy was deemed advisable and she was operated on by Dr Churchman, May 31, who found dilatation of the pylorus and of the duodenum as far as the position of the superior mesenteric vessels, marked enteroptosis and pale flabby intestines The abdomen was otherwise negative

Subsequent Course—The patient made a good recovery from the operation After it, the pains in the ankles, knees and abdomen persisted. The patient continued depressed and irritable Heart's action and respiration continued acceler ated. Later the pains in the legs and arms grew more severe, the deep reflexes became exaggerated and the small muscles of the hands began to show signs of atrophy. Patches of cutaneous hypesthesia and of a hyperesthesia were demonstrable over the body. The hematoporphyrinuria continued.

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[*] Read in the Section on Practice of Medicine of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912.

[*] From the Medical Clinic of the Johns Hopkins Hospital and University

By June 30 well marked bilateral wrist drop and foot drop had developed, with extensive atrophy of the muscles in the upper and lower extremities. July 14, the patellar and triceps reflexes could no longer be elicited, and there was marked plantar hyperesthesia. Obviously, the puzzling pains of the earlier periods had been due to the onset of an acute polyneuritis. The patient returned to Frederick, Md., July 15. We were kept informed of the subsequent course by Dr. McCurdy. The patient grew weaker, the paralysis increased, and she died Oct. 10, 1910.

Necropsy.—Dr. Sladen and Dr. Sprunt kindly went to Frederick and performed an autopsy. The anatomic findings, excerpted from Dr. Sprunt's notes include: "Dilatation of the stomach and duodenum, hemorrhagic erosions of the stomach, pigmentation of the kidneys, slight chronic diffuse renal disease, anemia, fatty degeneration of liver, kidneys, heart muscle and pancreas, hyperplasia of bone marrow, acute bronchitis and bronchopneumonia, pleural and peritoneal adhesions, scar of laparotomy wound, retroflexed uterus, slight colloid goiter, extreme emaciation (neuritis?), calcified nodule in right lung."

The note on the condition of the stomach and duodenum is of special interest. It reads as follows:

"Just below the xiphoid cartilage, the upper portion of the abdominal cavity is taken up by the greatly distended stomach and duodenum. The lower border of the stomach reaches a point about two fingers' breadth above the umbilicus. The first inch of the duodenum is in close approximation with the wall of the gall bladder. At this point it turns sharply backward toward the posterior abdominal wall curving round underneath the pyloric portion of the stomach appearing again below the stomach to the right of the mid line, and curving round in its subperitoneal portion to end abruptly where it passes beneath the mesenteric artery. Just beyond the mesenteric attachment the jejunum appears normal in size. The contrast between the size of the dilated duodenum and of the normal jejunum is striking. There is no mechanical obstruction demonstrable. The space through which the duodenum passed beneath the mesenteric artery at the base of the mesentery seems as large and as roomy as normal. The small intestine otherwise is contracted and seems empty. The large intestine also is small."

The whole autopsy report, including the description of the gastro-intestinal mucosa and the histologic findings in the viscera will be published in our completed paper later on. In our full paper, too, the literature of hematoporphyrinuria will be extensively discussed. It will suffice for the present occasion to state that since the condition was first observed by McMunn in 1880, it has been seen in various circumstances. Small quantities insufficient to change the appearance of the urine, occur in a variety of conditions, apparently even in normal persons. Outspoken hematoporphyrinuria with port-wine colored or reddish-brown urine has been observed most often in poisoning by sulphonal or allied substances (e. g., trional and tetronal); it has occurred also in poisoning from lead, glycerin and saffron. It has been encountered occasionally in the course of certain chronic infections (especially tuberculosis and lues), in hemorrhagic complications of certain diseases (hematemesis of gastric ulcer, intramuscular hemorrhage in typhoid fever, cerebral hemorrhage in atherosclerosis), in certain skin diseases (hydroa æstivalis, leprosy) and in exophthalmic goiter. There are on record, too, some instances of paroxysmal hematoporphyrinuria.

In connection with our cases, however, the most interesting reports in the literature are those commenting on the association of hematoporphyrinuria with gastro-intestinal disturbances (Ranke and Pardington, 1890; Schulte, 1895; Munro, 1908; Brown and Williams, 1909). There are seven such cases recorded; in at least three of them, a multiple neuritis developed as in our case, in one of them epileptiform seizures occurred. Two of the patients died, but no autopsies are reported. No one mentions gastroduodenal dilatation but we feel sure, from the similarity of the symptoms to those presented by our patient, that it must have been present. We are inclined to regard the chronic gastroduodenal dilatation with (relative) chronic obstruction (functional stenosis) at the level of the mesenteric vessels as the primary condition, to view the hematoporphyrinuria and general toxemia with polyneuritis as in some way secondary to this, the symptoms probably coming out at times, owing to functional stenosis or relative obstruction leading to toxemia. The surgeons (Maury) and the pathologists (Whipple) have been calling our attention to the lethal toxemias which accompany obstruction high up in the gastro-intestinal tube. The whole subject of gastroduodenal dilatation and its relation to so-called chronic gastromesenteric ileus on the one hand and to acute postoperative dilatation of the stomach on the other is worthy of special study. The operation of duodenojejunostomy, first suggested by one of us and, subsequently, independently by Bloodgood, for the relief of the condition has already been performed successfully by Staveley of Washington and should have an extended trial.

Though hematoporphyrinuria has been reported in connection with exophthalmic goiter, and though our patient showed signs of an acute thyreopathy superimposed on a slight colloid goiter during the course of her disease, we are inclined to regard the toxemia of gastroduodenal origin as the essential feature and the thyreopathy as an accompaniment.

We would emphasize, in our case, the family character of the disease. Besides the autopsy on our patient, Dr. Hunner has kindly given us the notes made by himself and Dr. W. G. MacCallum at the autopsy on her sister; in her, too, the stomach and duodenum were dilated. A third sister is now ill with the same syndrome. Perhaps some vice of development affecting all three accounts for the gastroduodenal dilatation which leads to the intoxication and the hematoporphyrinuria. The laboratory staff is now approaching the matter from the experimental side in the medical clinic.

We desire to thank Miss Nellie M. Casey, the district nurse at Frederick, for help especially concerning the family history.

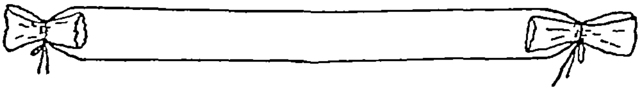
AUTO AND BICYCLE INNER TUBES USED AS ICE BAGS AND HOT-WATER BOTTLES

J. H. SCHRUP, M.D., DUBUQUE, IOWA

One often meets conditions indicating a hot-water bottle or ice-bag only to find them lacking. If the patient be too poor or the source of supply too distant or the time inopportune, it most frequently occurs that some makeshift is resorted to. If either a hot-water bag or an ice-cap is finally secured the chances are that it is unsatisfactory in some respect; that is, it is either too cumbersome, too heavy, too difficult of proper application or, not infrequently, leaky. Thus, as we all experience, our most efficient local treatment is either carried out with great difficulty or inconvenience, or the measure does not accomplish its purp

These conditions suggest the need of some substitute for use under adverse circumstances

Bicycles have been in use for a score or more of years and are now so numerous that one of them, or at least the remnants of one, and most often the very part required for this purpose is readily at hand Automobiles also have



Emergency hot water bag

the worn out or blown out inner tubes, certain sections of which answer the purpose very nicely One might also conceive conditions in which accidents due to the same conveyances would require either cold or heat, when the ready containers would be in immediate command

The method employed is to cut out a good section of the tube, as long as required, and tie the doubled over ends If there is a choice in the size of the tubes available for the indicated purpose, so much the greater luxury A small caliber tube, however, can be made to cover a large surface by using it as a coil The comparatively wide caliber opening affords easy filling, which is advantageous for ice—a marked advantage over the hot water bottle An additional point of practicability is to have enough of the tubing so that it will be possible to cut off or tie out any subsequent leak Any surplus length may also serve as anchorage or for the purpose of additional linear application

1120 Main Street

Therapeutics

THE CARE OF INFANTS

(Continued from page 624)

PROPRIETARY FOODS FOR CHILDREN

These may be divided into two classes, those which are designed to be used instead of milk, and those that are designed to be used in addition to milk Those that are used alone, as substitutes for milk, are largely composed of dried cow's milk with more or less addition of protein, starch, or malt-sugars

Whatever the food selected, it must be sufficient and represent all of the elements required by the child for his growth and health

It has seemed to be a fact that children brought up on these artificially prepared foods were prone to the development of scurvy and perhaps rickets Such a cause for rickets might be doubtful, such a cause for scurvy seems to be unquestionable, although it may be very mild in form and often is not recognized

Many times a food seems to agree with the child as far as its apparent digestion, nutrition and increased weight are concerned but in many cases the child, if attacked by disease does not have the ability to withstand the disease as well as does the milk-fed child It loses weight rapidly and its muscles are more flabby Perhaps what the child has lost by the deprivation of milk may be the cause of insidious blood conditions and other nutritional disturbances which occur in later childhood and during adolescence Certainly, if antibodies taken in with its mother's milk, and immunities taken in with its mother's milk are valuable factors in the child's welfare as they seem to be, and if certain kinds of immunity are received from cow's milk it would seem that if the mother cannot nurse the child cow's milk is the food of choice Still in certain instances, for short periods a good artificially prepared baby food may be of marked advantage

Certain kinds of indigestion are cured by a change from cow's milk to an artificial food, but it seems unwise to keep a child long on an artificial food alone, although the class of foods that are added to cow's milk are often, unquestionably, of value Most of these foods have a low fat percentage, and the child will be benefited temporarily by a change to such an artificial food, if fat was causing a disturbance

Many of these foods contain large amounts of starch, and a young child digests starch poorly After six months the addition of the extra starch to his food may be of advantage rather than a disadvantage, as before many months he will begin to take starch with more solid food Those that contain maltose and dextrin have the advantages described under the use of dextrinized and malt foods in certain kinds of indigestion

Some of these foods are of advantage, when used in small amount when the child, during an intestinal inflammation, has been entirely deprived of milk for from twenty-four to forty-eight hours

CHOCOLATE AND COCOA

The question is frequently asked by mothers and nurses as to the exact value of chocolate and cocoa, or the difference in their value The answer cannot be better given than it was in answer to a correspondent in THE JOURNAL, Dec 30, 1911, page 2158 The values of these foods are as follows

> The food value of chocolate and cocoa depends chiefly on their content of carbohydrates and fat Cocoa contains about 15 per cent of nitrogenous matter, but this is not all of a nutritious character The amount of fat varies greatly, since a considerable portion of it is removed in the process of preparation for use as food In the native cocoa it amounts to from 45 to 50 per cent If we estimate the carbohydrates and nitrogenous material in prepared cocoa at 25 per cent and the fat at 25 per cent, the nutritive value of 100 gm of cocoa would be approximately 325 calories As the amount commonly used for a cup of the beverage is about 5 gm, the nutritive value due to the amount of cocoa in the cup would be about 16 calories
>
> Chocolate contains 15 per cent of fat, 5 per cent of nitrogenous substance, and about 60 per cent of sugar The nutritive value of 100 gm of chocolate would therefore be approximately 410 calories If 5 gm of chocolate is used to make a cup of the beverage, the nutritive value of the chocolate employed would be approximately 20 calories
>
> The basic substance contained in cocoa and chocolate is theobromin or dimethyl xanthin, a substance related to uric acid It is a slight stimulant to the nervous system and an active stimulant of the heart and muscles It is also an active diuretic It stimulates the nerves less than caffein, and hence the beverages which contain it are less disturbing than coffee The amount of theobromin ordinarily taken is so small that its physiologic action is insignificant Long continued use, however, is said to be likely to produce gastric disturbances

MILK PURITY

While the proper care of milk is now thoroughly understood, it will perhaps do no harm to refresh our memories concerning milk facts These facts are ably described in a dissertation by L A Rogers, and issued in Farmers' Bulletin 348 of the United States Department of Agriculture This bulletin is freely quoted

A cubic centimeter of milk, approximately 25 drops, can contain thousands, millions and even hundreds of millions of bacteria A single drop may contain 40,000,000 bacteria

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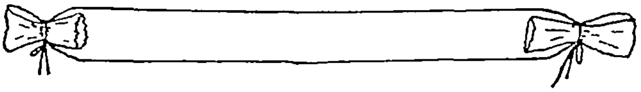

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Freezing does not kill many bacteria, although 32 F will stop growth From 35 to 70 F the growth of bacteria in milk is retarded, from 70 to 100 F the bacterial growth is most rapid, a little above 100 F. the growth ceases; at 212 F., the boiling point of water, all bacteria are killed. While a temperature of 125 F. may destroy a very few weak bacteria, a ten-minute exposure to 150 or 160 F. is fatal to nearly all bacteria which do not form spores. Spores are often destroyed only at boiling point, and some only by prolonged boiling. Much higher temperature is required when dry heat is used.

Milk, when secreted, is bacteria-free, unless the udder is injured or diseased. The real contamination occurs after the milk has left the udder and in spite of care is soon contaminated by dirt, dust, etc., especially manure dust, which contains large numbers of bacteria. Contamination of course also occurs from imperfectly cleansed pails, cans and jars, or from unboiled cloths used in straining milk. Even coolers may become contaminated, to say nothing of improperly washed bottles. The kinds of bacteria vary with the season of the year and the place in which the cow is milked.

As is well recognized, milk acquires flavors from all kinds of odors. They may come from the food the cow has eaten, or from disturbances of the cow. Odors may be acquired by uncovered milk from many kinds of food and fruits. Milk may acquire a flavor from bacteria.

Milk becomes soured by the action of some bacteria which break up the milk-sugar into lactic acid, consequently are often called lactic acid bacteria. These bacteria do not have spores, and are readily destroyed without boiling the milk. The acid formed by the action of these lactic acid bacteria causes the formation of casein which precipitates in the form of fine particles suspended in the soured milk. When this acid has sufficiently increased in amount the casein becomes a firm mass, and the milk is then said to be curdled. This result is hastened by heating. Milk that has undergone a pure lactic acid fermentation has a firm curd free from gas bubbles, and with a small amount of whey on the surface. When shaken the curd breaks up into small particles which settle slowly, leaving the clear whey. The milk should have a pleasant acid taste. These bacteria and the consequent chemically changed substances are not poisonous.

By the time a milk has become sour to the taste, the growth of nearly all non-acid-forming bacteria is checked, and the activity of the lactic acid bacteria themselves is checked. Consequently, sour milk usually contains a nearly pure culture of one, or at most two or three closely related bacteria. On account of these facts it is necessary to cool milk as soon as possible after milking to below the temperature at which lactic acid bacteria are apt to grow rapidly. This temperature should be about 50 F.

When milk enters the baby's stomach, the casein is precipitated by an enzyme (rennet) of the gastric juice and forms a firm curd. This curd has no sour taste. These curds are then acted on by the pepsin, and the digested milk is then ready to pass to the intestines for absorption.

When milk has a distinctly bitter taste it may be caused "by weeds the cow has eaten, by an abnormal condition of the udder, by an advanced period of lactation, or by the action of certain bacteria." The bacteria which cause this bitterness in unheated milk are generally of the acid-forming class and hence are better able to survive the lactic acid bacteria. The acid formed by this group of bacteria is usually butyric and not lactic.

The disease-producing or pathologic bacteria that occur in milk are the germs of tuberculosis, diphtheria, scarlet fever, typhoid fever and probably those that cause some forms of intestinal inflammation. The danger of milk becoming contaminated in spite of all dairy and handling care must never be forgotten. A drop of water, a speck of dust, or the legs of a fly may bring to an uncovered milk bacteria which will multiply enormously before the milk is taken as a food.

As above shown, pasteurization, or heating milk to an ordinary temperature without boiling, does not kill the spores of many pathologic bacteria. Sterilization, or boiling for ten to twenty minutes, does kill most spores.

It has lately been shown by Schorer and Rosenau[1] that many of the automatically working pasteurizing machines do not uniformly heat the milk, at least not until they have been in operation for several minutes. They therefore recommend that the milk passing through the instrument for the first ten minutes should be passed through the pasteurizer again. The efficiency of the apparatus showed on bacteriologic test that tubercle bacilli were not always killed. They found that if the milk reached 140 F. and was held there for twenty minutes the tubercle bacilli and typhoid bacilli were killed. They therefore believe the only pasteurization of safety to be that of a temperature of 145 F. maintained from thirty to forty-five minutes.

It has recently been shown in England[2] that boiling milk does not impair its nutritive value, and does not seem to be a cause of either constipation or rickets. The advantage of boiling milk as compared with the ordinary pasteurization in destroying bacteria and spores should be generally recognized; hence the above findings are of great sanitary interest.

The following rules should be observed by the mother or nurse:

1. The milk should be known to come from a dairy up to the sanitary standards, now well established, and the milk should be received cool.
2. The bottles should be kept cool both summer and winter, and best in a compartment separate from any other food. The milk should never be uncovered.
3. Utensils used for preparing the baby's milk should be washed thoroughly with hot water and soap as soon as they are empty, and then cleansed with boiling water.

(To be continued)

An Expression of Gratitude.—The lack of appreciation, not to say ingratitude of patients has come to be almost proverbial in the medical profession. Therefore it is refreshing to come across an exception to this general rule of conduct even though it comes from distant China where its occurrence is perhaps to be explained by the usually topsy turvy method of doing things. However that may be it gives us pleasure to copy from the *China Press* of Shanghai the following voluntary contribution to the benevolence and skill of a colleague:

THANKS TO THE GOOD DOCTOR.—In November last my son Anwen was very sick here in Shanghai. The disease was something like consumption. All the doctors said that they could do nothing for the boy. Just then Dr. ——— of the United States came to Shanghai. When he looked at my boy he said that the sickness was really serious. However there might be a little hope. Consequently he brought the child to his hospital in Soochow. The doctor and his son-in-law Dr. ——— carefully studied the disease. The next day he opened the abdomen of the sick with a long pin and from the hole flowed out twelve bottles of pus in which there were multitudes of poisonous animalcules. All such animalcules must be destroyed. Therefore the back part of the abdomen was widely opened and a rib was sawed away. At last the poison was washed cleanly away and the opening sewed up. Afterward my child gradually recovered and came back to life again. How wonderful is the doctor's art. Even the love of parents is not so great as this. I relate this story in order that the kindness of the doctor may be known among the community. [illegible] Tsin, Soochow.

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[1] Schorer and Rosenau: Jour. Med. Research, [illegible] April, 1912.

[2] Local Government Board on Public Health and Medical Subjects, New Series, No. 63.

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[*For other information see second page following reading matter*]

SATURDAY, AUGUST 31, 1912

THE NON SURGICAL TREATMENT OF CANCER

As surgical skill and the ability to diagnose advance, there is a decrease in the mortality rate of many so-called surgical diseases This is true in some measure of cancer when diagnosed in the earlier stages The hopelessness of advanced cases from a surgical point of view continues to be the incentive to tireless efforts to discover an effective non-surgical cure for cancer

The non-operative treatment of carcinoma may be classified under five general heads ferment therapy, physicotherapy, chemotherapy, serotherapy and tumor tissue or vaccine therapy

The first advocates of ferment therapy (Lussana, ini, Bouchut and Péan), advised the injection of gastric juice or pepsin directly into the tumor Shaw-Mackenzie, from a hypothetical standpoint, advocated the use of trypsin, and later it was shown (by Blumenthal and Wolf) that the proteins of cancer, in contradistinction to other tissue proteins are far less resistant to trypsin than to pepsin Beard reported success with subcutaneous injections of trypsin combined with amylopsin, others tried ferments obtained from the liver, etc, and Sticker and Falk stood sponsors for carbenzyme, a combination of vegetable charcoal and trypsin Much was promised but, with the possible exception of the originator of the particular treatment, those who tried them were disappointed

Roentgen rays while practically powerless in internal cancer, have a definite curative action on certain superficial cancers and are used at present with success in the treatment of rodent ulcer Radium, which on its advent was hailed as the long-sought curative agent, quickly fell below expectations, of other physical agents, such as high-frequency currents, carbon dioxid snow and fulguration, none has proved effective in internal cancer

Chemotherapy of cancer dates back to the very beginning of the history of medicine, almost every conceivable drug or chemical has at some time had its advocate. Arsenic in its various forms probably has been the most favored, atoxyl and salvarsan have been tried (by Czerny and Caan and Blumenthal) Undoubtedly the most startling event in chemotherapy of carcinoma is Wassermann's recent work with selen-eosin in carcinoma of mice Because of its extreme toxicity this substance so far has been used only in animal experiments Malaria and streptococcus infections have long been reputed to have a beneficial action on cancer Busch, after observing three cases which showed marked improvement following erysipelas, deliberately infected cancer patients with erysipelas and reported favorable results Nocht was persuaded to transmit malaria to two cancer patients, both died, it is said, of the malaria Coley elaborated a mixture of streptococcus and prodigiosus products, though failing to inhibit carcinoma, the mixture is credited with definite cures of sarcoma

Various workers injected animals with emulsions of cancer in the hope that an active anticancer serum might be obtained, but the therapeutic results in no degree corresponded to the demands of the hypothesis on which the work was based Serums of animals injected with organisms alleged to be the causal agents of cancer have all failed

Finally, we come to the treatment of cancer with tumor material of various kinds, a sort of inoculation or vaccine therapy Such inoculations have been found to have a definite protective effect in animals against transplantable tumors and apparently also to cure growing transplanted tumors, but these facts do not seem to apply to spontaneous tumors[1] The startling results obtained by Hodenpyl and Lewin from the injection of patients with ascitic fluid obtained from a patient with cancer of the liver are not yet forgotten, but unfortunately they seem destined soon to be, as nothing more is being said in regard to the matter

Stimulated by the apparently successful results obtained by LeBertrand, and by Coca and Gilman a trial of vaccine treatment of cancer was carried out by Coca Derrance and Lebredo[2] Under the most stringent aseptic precautions tumor tissue was ground up with an equal volume of normal saline solution and made into vaccines Vaccine A consisted of the supernatant fluid after centrifuging a few minutes, Vaccine B of the entire material Injections were made subcutaneously in seventy-nine selected cases Coca and his co-workers could demonstrate no antibodies either with the method of complement deviation or with that of specific precipitation in serum from patients who were injected with such material Among the patients treated were twenty-four in whom complete removal surgically of the tumor had been made, in seventeen patients there were either small primary tumors or small recurrences, thirty-eight patients had large tumors After repeated injections four of the large tumors showed a marked diminution in size, and one of the smaller ones, a malignant ulcer, lost its malignant character and began to heal Despite the precautions in the preparation of the vaccines (phenol and formaldehyd solution were added to some of them) local infection, which sometimes progressed to abscess formation, occasionally occurred at the site of the injections It is interesting to note in the light of the results with the Coley treatment that the four patients who improved most were among those in whom local infection occurred In only two cases in which the tumors apparently decreased in size was there no evident infection, nevertheless, Coca and his collaborators conclude that the reduction in size of these two tumors most probably was due to the absorption of inflammatory exudates In no one of the seventy-nine cases could improvement be ascribed directly to a process of immunization produced by the injection of tumor cells Neither were such injections capable of preventing recurrences even after apparently complete excision of the primary growth In 52 per cent of the cases there were recurrences later The physical condition of most of the patients improved under the treatment, and in the opinion of the authors this constitutes the sole indication for this form of inoculation in carcinoma

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[1] For review of literature see Coca Vaccination in Cancer Ztschr f Immunitätsforsch. 1912 xiii 5[illegible]4

[2] Coca Derrance and Lebredo Ztschr f. Immunitätsforsch, u exper Therap 1912, xiii, 543.

Despite the negative results so far as cure goes, this contribution to the literature on the non-surgical treatment of cancer is of great value The decisive elimination of one possibility after another brings us nearer and nearer to the solution of this great problem

SUICIDE STATISTICS

Dr Hoffman, the actuary of the Prudential Life-Insurance Company, submits that in 1911 for the first time in the history of small cities in the United States their suicide rate exceeded the rate for cities of over 250,000 population, and has increased by nearly one-half the rate of 13 6 per hundred thousand which obtained during the decade ending with 1910 The rate in our small cities last year was 19 8 per hundred thousand, whereas the rate of suicide in twenty-one cities with 250,000 or over was 19 5 per hundred thousand population The latter rate was 3 2 less than the average for large cities during the previous decade In seventy-nine small cities out of 100 cities of all sizes, 1,395 persons killed themselves during 1911, as against 957 "expected" suicides, that is, had the suicide rate of small cities for 1911 been the same as during the previous decade there would have been only 957 suicides instead of 1,395

In 100 American cities (seventy-nine under 250,000 and twenty-one over that population) the rate of suicide has grown steadily from 12 8 per hundred thousand twenty years ago to 20 3 in the five-year period ending with 1911 In 1910 the rate throughout our registration area was sixteen per hundred thousand so that there must have been 15,000 suicides in the United States last year

Dr Hoffman observes that it would require an extended analysis of individual suicides to establish, even with approximate accuracy, the true cause of this reversal of normal conditions since the change is in marked contrast to the long established experience that the suicide rate in small cities is decidedly below the average for large communities

With reference to his compilation of statistics of American cities he presents, however, Prussia's suicide record, from which some deductions are possible The Prussian suicide rate during 1910 was twenty-one, about that of American cities There were thirty-two male suicides as against ten female suicides The suicide mortality under 15 years is 0 68, with a quick and marked rise to 16 61 between the fifteenth and nineteenth years, and to 26 84 between the ages of 20 and 24 (the late period of adolescence), during the latter period defective education, mental, moral and economic, seems responsible for the very high suicide frequency But the highest rates are from 34 89 at 40 years to 58 71 at the seventy-ninth year—the period when those given to mental depression manifest decadence of mind and body Suicides are considered to be relatively few among women because, though they experience the craving for death as frequently as do men, they lack courage or are more strongly influenced by religious and moral principles It is probable that women have no less courage than men in committing suicide, but that they are better fortified against the temptation

For all ages the principal cause of suicide in Prussia was unsoundness of mind (22 8 per cent of the male and 40 6 per cent of the female suicides), next came bodily disease (10 per cent males and 9 3 per cent females) Nervous diseases accounted for 4 3 and 7 4 per cent, respectively Alcoholism was blamed for 10 1 per cent male, and but 1 5 per cent female suicides Sorrow and distress accounted for 12 2 male and 7 7 per cent female suicides

These causes seem to operate in proportion to the progress and complexity of civilization, and to this era's moral and religious perplexities and social discontent

THE INTERNAL SECRETION OF THE ADRENALS

The question as to what extent the ductless glands which produce a so called internal secretion are under the dominance of the nervous system in the elaboration or output of their potent products has been difficult to solve The precise chemical nature of the active principles involved has as yet been discovered in few instances only, so that their detection or the estimation of their content in blood or tissues has approached the impossible The epinephrin of the adrenals has furnished a conspicuous exception in that its chemical structure is now known and its physiologic effects determined and measurable Accordingly the adrenals appear to offer an unusual opportunity to test the possibility that such glands are regulated in their function by some innervating mechanism

Years ago *Dreyer*[1] *argued for a secretory innervation* of the adrenals He showed that an active principle is present in blood collected from the adrenal vein and that its content, as measured by the extent of the physiologic effects it is capable of producing, is increased by electrical stimulation of the splanchnic nerve below the diaphragm. The idea of secretory nerves was, of course, not a new one, but there had been no proof for the existence of such nerves to ductless glands with an internal secretion.

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[1] Dreyer [illegible] Am Jour [illegible]

Despite this evidence, the doctrine of secretory innervation of the adrenals has awakened little recognition until of late. Professor Leon Asher of Berne has subjected the matter to renewed investigation. He remarks, quite appropriately, that the occurrence of the potent epinephrin in a tissue is no conclusive evidence that it forms part of an internal secretion.[2] Are not the bile constituents specifically produced by the liver always missing even in the minutest amounts from the blood-stream, although the quantities in which they are present in the organ might seem to justify the assumption that they must be transmitted in part into the circulation?

By the ingenious method of stimulating the splanchnic nerves after all the abdominal viscera except the adrenals have been extirpated, Asher showed that a rise in blood-pressure can still be brought about. Proof is thus afforded that as the result of the nerve stimulation the adrenals have furnished the pressure-raising epinephrin to the rest of the body, in other words, that an internal secretion has actually been furnished. When the adrenal veins are obstructed no such result can be obtained. Furthermore, a suitable prolonged stimulation is attended by a continued maintenance of higher pressure. All of these facts speak for the secretory function of the splanchnics in relation to the adrenals put in evidence by the automatic response of the sensitive circulatory system. Pathologic as well as physiologic consequences at once suggest themselves in connection with such interrelations between the nervous and glandular systems. A continued overproduction of epinephrin depending on abnormal stimulation of the splanchnic system may bring with it undue blood-pressure, along with other symptoms, such as glycosuria, in association with this situation. Another possible interrelation between adrenals, nervous system and familiar disease is thereby brought into prominence.

THE TREATMENT OF MALIGNANT TUMORS BASED ON THE AFFINITY OF HEAVY METALS FOR TUMOR CELLS

The results obtained by Wassermann with selenium-eosin in the treatment of transplantable cancer are rather startling. Actual cures are reported to have been obtained by the injection into the blood of a combination of selenium and eosin. It has been shown that selenium-eosin has a definite affinity for cancer cells, the selenium being deposited about the nuclei and causing a complete disintegration of the cells. After repeated injections the tumor becomes soft and fluctuating; ultimately it may be absorbed completely. The extreme toxicity of selenium, however, and the harmful effects of rapid absorption of large tumors make the treatment very hazardous and its death-rate high, so that its application to man is not warranted. Nevertheless, Wassermann's work opens a new avenue of research and encourages the hope that a cure for human cancer some day may be discovered.

Other efforts in the same direction are forthcoming. Thus Neuberg, Caspari and Lohe,[1] working on the hypothesis that the greater autolytic power of tumor tissue as compared with normal tissue must be due either to a direct increase of certain ferments or to a defect in protective elements, tried to produce an active autolysis *in vitro* by the addition of colloids of a number of the heavy metals; therefore the workers mentioned tried to obtain salts and other compounds of heavy metals in such form as to be non-toxic for the host and yet to exercise a direct action on the tumor. This, it is said, they have succeeded in doing, but it is regrettable that they have chosen to withhold accurate information in regard to the substance used, merely stating that they employ "definite, for the most part crystalline, organic chemical compounds of a rather complex nature" of many of the heavy metals such as lead, silver, arsenic, antimony, vanadium, mercury, copper, gold, etc. Cobalt and silver were found to yield the most marked effects. The dosage ranged from 0.005 to 0.066 mg. per gram weight of the host.

The reaction following intravenous injection is described as most striking and rapid. Frequently within a minute afterward the tumor, it is said, may become hyperemic. A condition of stasis so extreme may develop that at times a serous exudate oozes from the surface. Hemorrhages may occur within the tumor, which in twenty-four hours becomes soft and fluctuating. Aspiration gives the detritus of a typical autolysate, with various protein end-products—albumoses, peptones, amido-acids, etc. Microscopically no intact tumor cells are found. The injected metal can be isolated from the detritus by chemical means. Primary and transplanted carcinomas of mice, rat sarcomas, and an adenocarcinoma of a dog all yielded readily to the treatment and disappeared completely. As many as twelve injections were given in some cases. In the case of the dog, however, it was found that the toxic dose was smaller for unit of body weight than that for the rat, and still smaller than that for the mouse. The dog sickened during the operation and died some six days afterward. Its death is attributed by the authors to the distemper, but was probably hastened by the absorption of the toxic products of autolysis from the softened tumor.

Although they are not at present capable of application to human cancer, these experiments are valuable because they show that malignant tumors are capable of a specific reaction to agents which do not injure the other tissues It is hoped that trial of the metal compounds by other workers will give like results Further developments will be awaited with great interest

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[2] Asher, L.: Die innere Sekretion der Nebenniere und deren Innervation, Ztschr. f. Biol., 1912, lviii, 274.

[1] Neuberg, C., Caspari, W., and Löhe, H.: Berl. klin. Wchnschr., 1912, xlix, 1405.

THE RESISTANCE OF PROTEINS TO BACTERIA

Only a few years ago it was current doctrine that proteins were available for the physiologic uses of the body without more than incipient and insignificant chemical change Solubility was the essential property required To-day we know that before the proteins are utilized by the animal organism they must experience that profound cleavage which attends the functions of digestion Accordingly the immediate sources of nutriment are the digestion products of the proteins rather than the native albumins themselves

It is consonant with current ideas regarding the action of microorganisms to think of all albuminous substances as being particularly prone to putrefaction The readiness with which bacteria grow in mixtures or solutions containing proteins and produce the characteristic decompositions therein is a familiar phenomenon of daily life, so that it might almost appear superfluous to ask whether they can utilize proteins directly It may seem somewhat surprising, therefore, to learn that preparations of pure proteins when left exposed to the germ-laden air do not appear to be broken down by bacteria, although molds are able to grow in them The point here raised has been the subject of an experimental inquiry at the Lister Institute in London [1] It must be borne in mind that our familiar nutrient mediums bacteria invariably contain nitrogenous food-mate other than proteins themselves One need only re the use of bouillon and the success of even p synthetic mediums Bainbridge has found that organisms examined by him do not break down a ciable quantities of egg-albumin and serum-protein in the presence of sufficient non-protein nitro food to ensure vigorous bacterial growth When tions of pure egg-albumin, serum-protein or albumin are inoculated, the bacteria used dimin number when the seedings are large, but mul some extent when the seedings are small—in the case presumably owing to the use of traces of non- substances in the medium There is no chem dence that the organisms studied are able to bre pure egg-albumin, and the presumption is t bacteria do not use unaltered protein as food then, is an analogy with the situation in the higher organisms

The facts just recited may have a bear antiseptic properties of egg-white lately in Professor Rettger's laboratory at Yale Uni has been taken for granted that the only protection which an egg has against bacterial invasion and subsequent "spoiling" is the shell As Rettger remarks, it cannot be disputed that the shell serves as a good protective covering This may be explained largely by the fact that "a normal egg is coated with a delicate layer of gelatinous substance This coating is easily injured or destroyed, hence the common belief that washing of eggs lessens their keeping qualities" In agreement with Laschtschenko, another important agent in the prevention of bacterial invasion into the interior of the egg has been found in the antiseptic and bactericidal property of the egg-white It seems quite probable that these are due to a specific antisubstance The bactericidal power is destroyed at a temperature of 65 C and it is not present in the yolk

The evidence is scarcely sufficient, as yet to warrant one in hazarding an explanation of this useful property of egg-white Can it be, in view of what has been said that 'pure, unchanged proteins may in a measure play the part of an antiseptic or disinfectant?"

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[1] Bainbridge The Action of Certain Bacteria Jour Hyg 1911 xi 34

[2] Rettger L F and Sperry J A The Antibac ricidal Properties of Egg White Jour Med Research,

losses of water or losses of more permanent tissue Again, he is interested, in the case of reduction cures in obesity, to know whether the fall in weight accomplished by skilfully instituted dietary measures represents actual loss of tissue — a more permanent result — or merely a transitory loss of water which can be and frequently is recovered as readily as it was eliminated from the organism It is of interest therefore to note the careful records which have been made by Galeotti and Signorelli[1] under conditions of rest and of mountaineering, the latter well known to be attended at times with marked changes in weight in the direction of loss The investigators measured the intake of food and drink, and calculated the water content, the water losses by the various excretory paths (skin, lungs, intestine, kidney) were likewise ascertained The immediate outcome of the study was the demonstration that under normal conditions the daily variations in body weight were almost always dependent on the water balance of the body Retention of water coincided with gain of weight, and the reverse had a corresponding analogy The largest water excretion occurred through the kidneys and bowel, the skin coming next, and the lungs last as a channel for loss of water Under conditions of very vigorous exertion the skin may assume the first place

No one would, of course, maintain that the questions of variation in body weight are all centered in the relative gains or losses of water Undoubtedly, however, the changes in the balance of water intake and output play an important rôle in the speedy changes which make themselves familiar under a large variety of circumstances

Current Comment

THE ACTIVE PRINCIPLE OF OPIUM SMOKE

Tobacco smoke and opium smoke are features of no mean significance in the routine of all too many individuals In view of the effects of these products, it is surprising that so little is known of their composition There is an impression current that the physiologic action of smoked opium is equivalent to that of the most potent constituent of the crude drug, namely, morphin, but since, in the particular mode of intoxication under discussion, the effective agent must of necessity pass into the smoke, it follows that the morphin must be sublimed if it is to pass as such into the products of combustion The debate as to the real intoxicating agent therefore has centered about the possibility of subliming this alkaloid unchanged, and those who have denied this have sought the toxic factor in decomposition products such as pyrrol, pyridin and similar compounds The question appears to have received a solution Dr Pott of the Pharmacologic Institute in Freiburg has actually demonstrated that morphin can be sublimed unchanged and therefore can actually be present in opium smoke[1] Furthermore, he has succeeded in demonstrating that the action of smoked opium is due to the presence of undecomposed morphin in the smoke Indeed, some of the more subtle and characteristic toxicologic effects of morphin can be duplicated by inhalation of opium smoke or its condensation products It is interesting to note as a bit of refined experimental technic that Pott succeeded in inducing specific morphin reactions in mice by injecting preparations from the blood of larger animals that had been caused to inhale opium smoke

INTESTINAL STASIS IN CHILDREN

In searching for apparently complex and obscure causes for indefinite symptoms it not infrequently happens that simpler, more obvious conditions are overlooked The results of intestinal stasis in adults are quite well known In children, the picture is developed more fully, and if we accept the statements of Barrington Ward[2] the results are far-reaching In tuberculous joint disease, rheumatoid arthritis, ulcerative colitis and appendicitis, intestinal stasis has been commonly found Children suffering from such stagnation are either dull and lethargic or querulous, they are thin and weakly and tend continuously to lose weight, their metabolism is feeble The latter symptoms are so constant that increase in weight is absolute evidence that stasis has been overcome Skin staining is always present, the neck, axillæ, flanks and flexures of the limbs being the sites usually chosen There is also a tendency to evil-smelling perspiration As diagnostic of the condition, frequency of motions is unreliable The only reliable means of securing data on the stasis is by *x*-ray bismuth photographs A standard has been established, the passage through the alimentary canal taking twenty-four hours in a normal child, while fifty to 100 hours are required in children suffering from stasis In one case of tuberculous joint diseases the time required was 160 hours Tuberculosis is a common end-result It is believed that in this condition infection by the bowel in children is much more common than in adults It is also believed that infections of the urinary tract with *Bacillus coli* may be traced to the same source As evidence in this regard it is pointed out that as infection of the right side is more common and the highest degree of stasis is usually in the cecum a relationship seems to exist Nevertheless it is not clear how the bacillus reaches the right pelvis and ureter in such instances Two cases are reported in which excellent results were achieved by overcoming the stasis In one case in which there was a marked rheumatoid arthritis, a stasis of fifty-two hours was determined Arbuthnot Lane, under whose direction the observations were made, divided the ileum and planted it low down in the pelvic colon Rapid and uneventful recovery took place There began a constant increase in weight at once, the symptoms disappeared entirely, and in three months the child appeared bright and healthy with the exception of two joints in which marked contractures had taken place previously In a case of tuberculous joint disease, a similar rapid and marked improvement occurred. In early stages general dietetic measures yield satisfactory results. Ward and Lane in such cases have given paraffin with advantage. In later conditions, when gross adhesions have formed, stronger measures are advised, and in such instances Lane has transplanted the ileum into the pelvic colon successfully, even in children as young as 2 years, but of course such radical treatment cannot be applied generally. It is highly necessary to recognize the importance of the condition, and to seek for better prophylactic and medical methods of controlling it.

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[1] Galeotti and Signorelli Wasserbilanz im Hochgebirge Biochem Ztschr 1912 xli 268

[1] Pott R Die wirksame Substanz des Opiumrauches Biochem Ztschr 1912 xlii 67

[2] Barrington Ward Surg Gynec and Obst 1912 xv 46

PHYSICIANS AND THE NERVOUS LIFE

The last three United States census reports gave the death-rate for physicians as higher than that of any other professional class. Nervous diseases constitute the most important factor in this death-rate. Commenting on these figures, W. K. Newcomb[1] enumerates the probable causes for this unsatisfactory showing—the urgent call interrupting the moment of relaxation, the telephone bell breaking in on the hour devoted to quiet reading, the ever-present sense of responsibility and, most of all, what William James defines as "those absurd feelings of hurry and having no time . . . that breathlessness and tension, that solicitude of results, that lack of inner harmony and ease by which, with us, work is apt to be accompanied." Americans are inclined to measure efficiency subjectively—to make "the strenuous life" a synonym for "the efficient life." If a man reaches home at night a nervous wreck he is apt to feel sure that he has spent his day effectively and well. Possibly even physicians, who from observation and theory know only too well the absurdity of this subconscious reasoning, are liable to be infected by it. The inexorable urgency of many of the physician's duties will never permit his life to flow with serene and rhythmic placidity, but doubtless it would be well worth while for most of us to spend a little time in analyzing and attempting to eliminate some of the causes for that wearing and useless haste and worry which shorten our days.

LYING AGAIN ILLEGAL

When Congress, in 1906, passed the federal Food and Drugs Act, colloquially known as the "pure food law," it declared in that act that any drug should be accounted misbranded

> the package or label of which shall bear any statement . . . which shall be false or misleading in any particular . . .

For nearly half a decade after the passage of this law it was generally believed, and the courts held, that it was illegal to make any statement on the label of a food or drug that was "false or misleading *in any particular*." When the point was raised before the Supreme Court, however, that august body declared—by a majority of five to three—that the phrase "false or misleading in any particular" meant false or misleading *in certain particulars*, to wit, as applied only to the composition or sources of origin of the products. This decision, naturally, gave general cause for rejoicing among that swindling brotherhood which robs the sick and defrauds the mortally ill by selling worthless "cures" for cancer, consumption, etc. It is more than a year since the Supreme Court's decision so seriously crippled one of the most beneficent pieces of legislation of modern times. But Congress has again put up the bars and the President has signed Congressman Shirley's bill which so amends the Food and Drugs Act as to restore the broader meaning originally attributed to that piece of legislation. Mr. Shirley's amendment consists, essentially, in the addition of a third paragraph to Section 8 of the Food and Drugs Act. This paragraph reads:

> If its package or label shall bear or contain any statement, design, or device regarding the curative or therapeutic effect of such article, or any of the ingredients or substances contained therein, which is false and fraudulent.

There can be no mistaking the intent of this amendment. It says to the "patent-medicine" faker in plain and unequivocal terms: "Thou shalt not lie."

COAL SMOKE AND THE ETIOLOGY OF CANCER

Theories as to the etiology of cancer are many, facts are few. An interesting, if not convincing, theory is that of Green of Edinburgh[1] which has to do with the irritation caused by smoke and other combustion products of coal. After considerable study and investigation of the incidence of cancer as shown by the vital statistics records in England and Scotland, as well as by reports from other countries, Green attempts to show that the highest percentage of cancer cases occurs in cities and districts of hilly or uneven topography or contour and that cities built on flat or level ground have the lowest incidence of cancer, the figures varying closely in accordance with the variations in these topographical features as taken from official records, particularly in Scotland. He goes even further and attempts to show that even in cities built on level ground but having great variation in the sky line or height of buildings there is also an increased incidence of cancer. The significance of this lies in the fact, according to Green, that this unevenness interferes with ventilation and perfect combustion of coal, resulting in smoky houses and the inhalation by the inhabitants of irritating gases. He quotes the statement that in the city of London from half a million to one million tons of sulphuric acid from coal-smoke are annually diffused into the air. He cites the fact that in warm or tropical countries, where little or no coal is burned, cancer is rare or absent, but appears in higher percentage the greater the distance from the equator, which, of course, means greater consumption of coal for purposes of warmth. Greenland and Iceland seem to be exceptions, but in Iceland, where turf is largely burned, and in Greenland, where oil is the only fuel used for light and fuel, cancer is rare. The consumption of coal in Ic[illegible] ience of cancer Other instances are cited to prove the theory Green marshals statistics ingeniously to support his theory The candid reader will feel, however, that statistics, like mercenary soldiers, are too readily marshaled in support of any and every theory to be really formidable except as auxiliaries — at all events, where such a complex subject as pathology is concerned

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[1] Newcomb, W. K.: The Physician Considered as an Economic Factor, Illinois Med. Jour., July, 1912, p. 1.

[1] [illegible] & Son [illegible]

Medical News

ARKANSAS

Personal—Dr J C Hughes, Walnut Ridge, was shot at from ambush while riding along a country road August 4, but fortunately was uninjured——Dr C R. Doyne, Conway, has been appointed assistant physician in the State Hospital for Nervous Diseases——Dr H L. Routh, Batavia, who was seriously injured in a runaway accident a few weeks ago, is reported to be convalescing——Dr William J Manglesdorf has been appointed city chemist of Little Rock, vice Dr C H Hoffman, resigned

New Hospitals—The new State Hospital for Nervous Diseases, Little Rock, is now completed and will accommodate 150 patients——The Fayetteville City Hospital is almost completed and will soon be ready to receive patients The site for the hospital was donated by the will of S K. Stone The building is a two story brick structure, on the first floor of which there are four four bed wards On the second floor there are seven private rooms and one ward——A Pasteur institute has been established in Little Rock which will be under the direction of Dr Loyd O Thompson, city bacteriologist

COLORADO

Personal.—Dr Robinson Bosworth, formerly a member of the staff of the Agnes Memorial Sanatorium, Denver, has been elected superintendent of the Arkansas Tuberculosis Sanatorium, Booneville, vice Dr J S Shibley, resigned

Education by Motion Pictures—The State Board of Health is giving a series of motion picture shows in the various towns of the state on the 'Fly Pest" and the 'Man Who Learned" The latter is an illustrated lecture demonstrating the new methods of handling milk.

Leper in Denver—C W Brownson, who admits that he escaped from the leper colony in San Francisco is under surveillance in a tent at the Denver Isolation Hospital, Sand Creek, and the question of his return to California is at present puzzling the health authorities on account of the various states and counties lying between Denver and the coast permission from all of which would have to be obtained before he could be returned to California

ILLINOIS

State Board Wins Suit—In the suit brought by the Illinois State Board of Health against L G Brown, Quincy, a so called chiropractor for practicing medicine without a license, the jury found the defendant guilty August 15, and he was fined $100 and costs

Gold Fish to Kill Mosquitoes—Dr G G Dowdall, chief surgeon of the Illinois Central System, has originated a plan to exterminate the mosquitoes along the lines of the road by stocking the stagnant pools with goldfish minnows, which live on the larvæ of mosquitoes

Medical Societies Entertained.—Dr Carl E Black, Jacksonville entertained the medical societies of Morgan and Cass counties at his summer bungalow near Virginia, August 15 The affair was in honor of his father Dr Greene V Black Chicago, and addresses were made by Drs Frank B Norbury and George F Kreider, Springfield and James F Percy, Galesburg

Would Mandamus State Board.—A suit was commenced on August 16, in the Superior Court of Cook County, by Vito Dojno a graduate of the University of Rome Italy, who charges that the State Board of Health did not translate his examination papers properly Dojno took the examination in Italian and failed to obtain the necessary mark The state board holds that the translation was correct and that Dojno is not entitled to practice.

Physician in Trouble for Misconduct—Dr James A Egan, secretary of the State Board of Health, has summoned Dr Seth M. Wells, of Quincy, to a hearing October 15, at which Dr Wells will be given opportunity to show why his license should not be revoked for unprofessional and dishonorable conduct, the particular charges being fraudulent representations in newspaper advertisements, and further, that his license in Illinois was fraudulently obtained, since he was a fugitive from justice of the State of Utah at the time the license was issued.

The Patten Fund Work.—The program for utilization of the $250,000 given Northwestern University by James A. Patten two years ago as an antituberculosis fund has been announced Dr Arthur I Kendall, formerly of Harvard, has been placed in charge of the work as professor of bacteriology and will be assisted by the holders of four fellowships to each of whom the fund gives $600 a year The gift made by Mr Patten was for the purpose of advancing the scientific investigation of disease causes and the prevention of disease, the donor expressing the wish that particular attention be paid to the investigation of tuberculosis

Chicago

Cuban Physicians Study Sanitation—Drs J M Peinchet and R. Noguiera, health officers of Cuba, appointed by President Gomez to investigate sanitary methods, are studying health conditions in Chicago

Pasteurization to Be Explained.—Arrangements have been made to operate a pasteurization plant in Chicago for ten days for the benefit of the public All who are interested in the pure milk crusade will be invited to visit the plant and view the methods employed

Personal—Dr Theodore B Sachs, physician in chief to the Chicago Winfield Sanatorium, has resigned.——Dr and Mrs E N Elliott have returned after a trip abroad——Dr Ernest S Moore, physician in charge of the County Tuberculosis Hospital, Dunning, has resigned

IOWA

Society Undertakes Hospital Management—The lease of St Elizabeth's Hospital, Fort Madison, to Dr C W Walker expired August 15, and the management of the hospital reverted to the Fort Madison Medical Society

Farewell to Dr Rosenbladt.—The Audubon County Medical Society gave a dinner August 1 in honor of Dr F Rosenbladt, Audubon, who is about to make his home in Des Moines Dr Rosenbladt was presented with a gold ring bearing Masonic emblems

Annual Clinic.—The annual alumni clinic of the State University College of Medicine, Iowa City will be held October 22 23 Drs William H Welch and William S Thayer Johns Hopkins University, and Dr P D Kerrison, New York City, are on the clinical program

Personal—Dr E T Kegel, Iowa City, has been elected physician of Johnson County——Dr E H King has succeeded Dr T F Beveridge as president of the board of directors of Hershey Hospital, Muscatine——Dr William F Carver, Fort Dodge, was seriously injured by the overturning of his automobile near Ogden——Dr George F Dolmage, Iowa City has resigned as instructor in surgery in the University of Iowa School of Medicine and will practice in Buffalo Center——Dr Frank R Senska, Germania, has been assigned as a medical missionary to western Africa

KENTUCKY

Cooperation and Disease Prevention.—The State Board of Health is endeavoring to enlist cooperation between the schools, churches and social enterprises in the prevention of disease To this end a conference of representatives from each organization has been called during the meeting of the State Medical Association in Louisville, October 28 30

Personal—Dr Joseph A Goodson, Dixon, has been appointed superintendent of the Eastern Kentucky Hospital for the Insane, Lexington——Dr J M Morris, Louisville, is ill at his home with septicemia due to an infected wound of the finger——Dr J W Fitch, Louisville, slipped and fell, August 6 breaking his leg

Eminent Chemist Dies—Prof Melville A Scovell, director of the Kentucky Experiment Station, Lexington dean of the College of Agriculture of the Kentucky State University and member of the State Board of Agriculture, prominent in the pure food work of the Department of Agriculture and a special agent of that department, a chemist of unusual ability, chairman of the Official Dairy Test Commission at the World's Columbian Exposition in 1893, died at his home in Lexington, August 15, from angina pectoris

Hookworm Work in Kentucky—Dr Arthur T McCormack, assistant secretary of the State Board of Health, has received a letter from the executive secretary of the Rockefeller Sanitary Commission containing a report of the work of the board regarding hookworm in Kentucky At the summer school for county health officers held in Louisville, July 8 11, hookworm disease was given great prominence. Illustrated lectures were delivered and about a thousand specimens are already on hand for examination at the state bacteriological laboratory, Bowling Green He especially commended the organization of the medical profession of the state, the cooperation of practitioners in the work against hookworm, and the aggressive energy of the State Department of Health and of all persons connected with it

MARYLAND

Personal—Dr Arlington G Horine has been elected mayor of Brunswick——Drs W M Sterling, White Hall, Wright S Sudler, Baltimore, G Carville McCormick, Sparrows Point, James H. Wilson, Fowblesburg, Benjamin R. Benson, Jr, Cockeysville, and F K Nichols, Baltimore, have been appointed deputy local registrars of vital statistics for Baltimore County——Dr Victor F Cullen, superintendent of the Maryland Tuberculosis Sanatorium, Sabillasville, was given a dinner and reception by the Merchants' and Manufacturers' Association of Cumberland, August 14

Typhoid in Maryland—The epidemic of typhoid at Cambridge is believed to be well under control All but two of the fifty four cases were traced to milk supplied from one dairy The water supply of the city was found uncontaminated. Dr Marshall L. Price, who is in charge of the situation, believes that the epidemic is practically at an end——Dr C W G Rohrer, Baltimore, after investigating the typhoid outbreak at Westminster, reports that the source of infection was at the reservoir polluted by an open drain On August 24 there were eleven cases of typhoid in the city——At Cumberland nineteen cases of typhoid have been reported this month

Baltimore

Russian Professor in Baltimore—Dr Ivan Koblukov, of the University of Moscow, is making a stay in Baltimore to study the work at the Johns Hopkins Hospital

Possession of Cocain Not Illegal.—Assistant States Attorney Marchant has given an official opinion to the Board of Pharmacy that the Swann cocain ordinance passed in 1908 has been repealed by the antinarcotic law passed in 1912 and that consequently the possession of cocain is no longer illegal

New Ward at Johns Hopkins.—A new four story brick, fireproof structure is to be erected at Johns Hopkins Hospital to accommodate fifty four patients It will be connected with the main corridor A new story will be added to ward C" and a new dining room for officers and reception room will be provided

MICHIGAN

College Becomes Extinct.—It is reported from reliable official sources that the Detroit Homeopathic College has voluntarily become extinct

Tuberculosis Clinic for Kalamazoo—Headquarters have been secured for a free clinic and dispensary for tuberculosis by the Kalamazoo Antituberculosis Society

Personal.—Dr N S MacDonald, Hancock, for fifteen years chief of the medical staff of the Quincy Mine, has resigned to take effect October 1, when he will sail for Europe He will be succeeded by Dr A F Fischer Hubbell——Dr R A Burke, Ishpeming, has resigned from the staff of the Ishpeming Hospital and is health officer of Ishpeming and will take charge of the work of the M A Hanna Company at its American mine, Diorite——Dr George S Williams Muskegon, has been appointed state medical inspector for the ninth congressional district——Dr F J Howard Detroit was attacked, August 9, by an unidentified assailant who threw acid in Dr Howard's face

MISSISSIPPI

New Hospital—The Clay County Medical Society has established a hospital in West Point

Health Campaign.—Dr W L. Leathers Director of Public Health of the state announces that the boards of supervisors of Lauderdale Jasper and Jefferson counties have appropriated the amount of money required for the conduct of the health campaign in these counties

Personal.—Dr M J L Hove, Meridian, health officer of Lauderdale County, has been appointed registrar of vital statistics for Meridian——Dr S L Rowan assistant physician at the State Insane Hospital Vicksburg, was painfully injured by a falling timber August 3——Dr Albert Wood Jackson has been appointed by the Minnesota State Board of Health public health officer of Rochester acting under Dr Charles H Mayo, local health officer——Dr J C French health officer of Natchez, has resigned——Dr Thomas C Newson Independence, has been appointed assistant bacteriologist in the laboratory of the State Board of Health——Dr S A Gassaway, New Albany was thrown from his buggy recently and seriously injured

NEVADA

Date of State Meeting Changed.—The date of the meeting of the Nevada State Medical Association has been changed from September 10 12 to October 8 10

NEW JERSEY

Medical Department of Library—The new Carnegie Library at Elizabeth is to have a doctors room in the basement where periodical literature and reference books may be found and which may also be used as a smoking room

Riverton's Fly Campaign.—Riverton is paying a bonus for dead flies, for the board of health which is conducting a crusade to eliminate these pests pays two cents a thousand for all caught in Riverton So far 729,000 flies have been purchased

NEW YORK

State Deporting Many Aliens—The new State Bureau of Deportation reports to the State Hospital Commission that about 300 aliens are being deported weekly from New York

Leper Released—Sam Isen, the Bay City (Mich) leper who has been under surveillance at the Ernest Wende Hospital Buffalo, was released by the health commissioner the latter part of July

D.P H. for State Health Commissioner—At the commencement exercises of Syracuse University, the degree of doctor of public health was conferred on Dr Eugene H Porter, New York City, as a mark of public recognition of the valuable work done by him and his department

New Hospital Nearly Ready—The new building of the German Deaconess Hospital Buffalo, is practically completed and the equipment will permit of the opening of the hospital on or about September 1 About $200 000 was raised by public subscription last year for this building

New York City

Apartment Building for Professional Men.—The house at 19 West Fifty Fourth Street which John D Rockefeller Jr bought several months ago, is to be altered into an apartment building for physicians and dentists

Flies Blamed for Typhoid Epidemic—The recent epidemic of typhoid in Brooklyn is attributed by the bacteriologist of the Water Supply Department Daniel D Jackson to flies in the cellars of new buildings where the building inspectors have failed to enforce the sanitary code

Hospital Tenements Sold.—A portion of the property bequeathed by the Michael Valentine estate to the Presbyterian and Hahnemann hospitals has been sold The value of the entire bequest is estimated at about $600 000

Fewer Infant Deaths—During the week ended August 17 there was only one death among the 17 000 babies under the care of the Baby Welfare Association For the week there were only 3[illegible]3 deaths of infants under one year of age compared with 408 for the corresponding week of 1911 Conditions in every borough were better than in the corresponding week of last year

Hospital Appeals for Aid—The Hospital for Deformities and Joint Diseases is making an appeal to the public for aid in completing and equipping its new building This hospital has the largest clinic of its kind in the world the attendance being between 1[illegible]0 and [illegible]00 daily It is the only hospital in the city which treats adult patients with chronic joint diseases congenital and acquired Last year 29 [illegible]22 cases came under the observation of the hospital physicians

Need State Meat Inspection—T[illegible] has [illegible] of complaint recently [illegible] unfit for human consump[illegible] in New York City [illegible] State Commissioner of [illegible] give no relief from the grievance, as there is no state law providing for state inspection It is said at the state commissioner's office that the local board of health in New York has full authority under the public health law to act in bad meat cases

NORTH CAROLINA

Personal.—Dr J E Brooks, formerly of Greensboro, but for several years superintendent of the State Sanatorium for Tuberculosis, Montrose, has resigned and Dr M. Eugene Street, Glendon, has been placed in temporary charge of the institution——Dr John Hill Tucker, Charlotte, who was operated on for appendicitis in Norfolk, Va, several weeks ago, is convalescent——Dr R. A. Moore, Durham, who has been seriously ill, is reported to be improved.

PENNSYLVANIA

New Officers—Wayne County Medical Society at Honesdale, July 18 president, Dr Robert W Brady, Honesdale, secretary and reporter, Dr F A. Lobb, Hawley

Society Secures Home—Berks County Medical Society has purchased, for $10,000, a house at Walnut and Madison streets, Reading, which will be used as a permanent home for the society

Emergency Hospital Contract Awarded.—The commissioners of Lehigh County have awarded the contract for the erection of the isolation hospital at the Lehigh County Home, Allentown, for $7,875 The hospital will be owned jointly by the county and the city of Allentown

New Indiana County Hospital.—The general committee of the Indiana Hospital Association has undertaken to raise $10,000 for a site for the new $60,000 county hospital to be erected south of Indiana A coal operator has agreed to furnish the $60,000 for the hospital if a site is obtained.

Personal—Dr John M J Raunick has succeeded Dr John C Hutton as health officer of Harrisburg and secretary of the Municipal Health Board——Dr Herbert Hays Bullard has been appointed instructor in anatomy and neurology in the University of Pittsburgh Medical School, vice Dr Edward D Cougdon, resigned, and Dr Harry Ryerson Decker, demonstrator in anatomy, has been promoted to instructor in anatomy in the same institution——Dr Carlisle E. McKee, Braddock, has returned from abroad——Dr W A H Detweiler Schuylkill Haven, was painfully injured in an automobile accident August 17

Discharged Patients Form Society—In order to keep in touch with discharged patients from the Philadelphia Jewish Sanatorium at Eaglevillle, an organization, known as the Jewish Sanatorium Patients' Antituberculosis Alliance, has been formed They hold regular meetings at which a doctor attends to instruct the ex patients, when necessary, as to the precautions they must use in order to keep in good condition The sanitarium hopes in this way to reduce the percentage of cases where there is a recurrence Recently Dr Myer Solis Cohen, of Philadelphia who has been one of the visiting physicians since the hospital's inception, was elected children's physician and will have complete charge of the new children's shack

Small Pox Epidemics—Director L R. Walters of the Pittsburgh Department of Public Health, issued an order August 16 that all the residents, more than 30,000 persons, in the upper end of the old Lawrenceville district, a suburb of Pittsburgh be vaccinated This measure is taken to prevent the further spread of small pox raging in that district, and arrangements have been made for the erection of a building on the old West Penn Hospital grounds for a detention house The city has allowed Dr Walters an appropriation for additional city physicians Up to August 22, Carbondale had 22 cases of small pox and a number of suspects which are being watched Assistant State Health Commissioner C J Hunt, Harrisburg, has gone to Carbondale and Mayor Murrin has issued an order for compulsory vaccination and has approved the order of the board of health closing all schools, churches theaters and amusement places

Outbreak of Typhoid in Chester Valley—Investigation of the outbreak of typhoid fever in the Chester Valley shows the source of the epidemic to have been the contaminated milk of one dairy farm at William's Corner, a suburb of Phoenixville There are about 25 cases scattered about the little settlements of the valley and nearly half of the patients are Italians residing at Devault, Cedar Hollow and Howellville In the household of the milk dealer, there are three typhoid patients Under the direction of Dr Joseph Scattergood, county health physician, West Chester, the cows on this farm have been removed to other quarters and the barn, house and milk house thoroughly cleaned and disinfected The sanitary engineer of the Springfield Water Company, whose pumping station near Phoenixville supplies the towns along the main line east of Glenloch, has been supervising carefully the work of protecting the water supply of the many towns, and bacteriologic tests of the water supply made daily show it free of all impurities when forced into the pipe lines

Philadelphia

Measles on German Ship—The North German Lloyd Steamship *Brandenburg*, which docked August 21, had an outbreak of measles in the steerage Five children, their mothers and a man, who became ill after the ship left Bremen, were immediately isolated, so that the ship was not held in quarantine here

Personal.—Dr Harry Lowenberg has been elected assistant professor of infantile dietetics in the Medico Chirurgical College——Drs Edna S Valentine and Aaron Barlow have been appointed assistant bacteriologists in the bureau of health——Dr Ralph F Sommerkamp, who has been ill at his home in Arlington since February, is reported still to be seriously ill

New Hospital for University—Plans are now being made for the hospital of the University of Pennsylvania, which include an entire set of new buildings, occupying the land bounded by Thirty Fourth and Spruce Streets, Hamilton Walk and the dormitory group now occupied by the present hospital These buildings when completed will represent an outlay for construction alone of $1,000,000, and the first step will be the erection of a surgical building to cost about $300,000, one half of which has already been appropriated by the state This building will occupy a plot 80x94 feet, will be in the Elizabethan style of architecture, a seven story structure, having five floors above the street level in addition to a basement and ground floor The foundation will permit three additional stories to be added later On the ground floor will be the *x* ray department, the first three floors will contain surgical wards, while the remaining wards will be devoted to operating amphitheaters, laboratories, etherizing rooms and recovery wards

GENERAL

Railway Surgeons to Meet.—The twenty second annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel Astor, New York City, November 13

Electrotherapeutists to Hold Meeting—The twenty second annual meeting of the American Electro Therapeutic Association will be held in Richmond, Va, September 3 5, under the presidency of Dr William D McFee, Haverhill, Mass

Appropriation Asked for McClintic's Widow—In recognition of the heroism of the late Dr T B McClintic, U S P H Service, Senator Myers, of Montana, has introduced a bill to pay $5,760, the amount equivalent to two years' salary, to the widow of Dr McClintic

Military Surgeons Meet in Baltimore—The annual meeting of the Association of Military Surgeons of the United States will be held in Baltimore, October 1 5, under the presidency of Surgeon Charles P Wertenbaker, U S P H Service Among the features of the entertainment provided are a trip to Annapolis to the Naval Academy and a reception by the governor of the state

Meeting of Fraternal Society Surgeons—At the annual meeting of the medical section of the Associated Fraternities of America held in St Paul, August 19, the following officers were elected president, Dr P A Quick, Muskegon, Mich vice president, Dr Charles P Brown, Omaha, and secretary, Dr M M Smith, Dallas Tex (reelected)

Correction of the Educational Number—In THE JOURNAL, last week, page 650, second column, lines four and five, referring to students enrolled during 1911 12, read The eclectic colleges show a decrease of sixty three below 1911 and forty seven below 1910" As shown by the figures in Table 4, which are correct the above lines should read 'The eclectic colleges show a decrease of 125 below 1911 and 147 below 1910"

Ruling Regarding Lepers.—The solicitor of the treasury department at the request of Surgeon General Rupert Blue U S P H Service, has rendered an opinion in the case of Sam Isen, the leper who escaped from Bay City, Mich, and was under surveillance in Buffalo for several weeks, that as he was a citizen neither of Bay City nor Buffalo it remains for the authorities who have him in charge to care for him As noted elsewhere in this issue, this leper was released by the health commission of Buffalo, and his present location is unknown

Wish to Stop Sending Consumptives to Southwest.—In order to discourage the sending of individuals in the advanced stages of tuberculosis to the Southwest, physicians in the Eastern and Southern states are to be asked by the National Association for the Study and Prevention of Tuberculosis to stop this practice The association admits that not less than 10 per cent of the six million inhabitants of Colorado, New Mexico, Arizona, Southern California and Western Texas have tuberculosis or have come to the Southwest because of tuberculosis in the family

Prevention of Malaria.—The Southern Medical Association has appointed a special commission consisting of Captain Charles F Craig, M. C U S Army, chairman, Dr Graham E Henson, Crescent City, Fla, secretary, and Drs R H von Ezdorf, U S P H Service, Mobile, William Kraus, Memphis, Tenn, Creighton Wellman, New Orleans, William H Deaderick, Marianna, Ark, W S Thayer, Baltimore, Seale Harris, Mobile and C C Bass, New Orleans The commission will tabulate information from the entire South on malaria and diseases simulating malaria and will decide on what means will be used for the elimination of this condition

Railway Hospitals Turned Over to Employees—The management of the entire hospital service of the Missouri Pacific Iron Mountain System has been turned over to the employees of these companies The management is vested in a board of nine hospital service managers of which the chief surgeon of the road is *ex officio* chairman The remaining members of the board are chosen, one each, from the following departments train, engine and yard service, shops, roundhouse and repair yards, maintenance of way and structures, telegraphers, office and station employees, operating department, law department, accounting department, and one member as yet unassigned.

Railroad Rates for Hygiene Congress—For the International Congress on Hygiene and Demography to be held in Washington, September 23 to 28, the railroads have announced a one and a half first class limited fare on the certificate plan, with a minimum of $2 for the round trip, tickets good going September 21, 22 and 23, returning, to reach the starting point, October 1 This rate applies to the railroads composing the Trunk Line Association, which includes most of the Eastern roads, and the roads belonging to the New England Passenger Association Special rates have been made by the Southwestern, the Southeastern and the Transcontinental Passenger Associations No special concessions have been made by the Central Passenger Association The Western Passenger Association suggests that delegates purchase summer tourists' tickets to Eastern points which are good returning October 31

European Members of American Tour—Last week THE JOURNAL gave the itinerary of the party which is to make a medical study trip to America in connection with the International Congress on Hygiene and Demography Following is a list of the members of the party

GERMANY

From Berlin Geh Medizinalrat Prof His President of the Central Committee for Medical Study Trips Sanitätsrat Dr Oliven General Secretary of the Central Committee and Frau Prof Lennhoff Division Chairman of the Central Committee Dr Bentscher Sanitätsrat Dr Braun Geh Medizinalrat Prof Brieger and Frau Dr Konrad Cohn Prof. Dieck Dr Ekstein Prof Flatau and Frau Dr Fleischer Stabsarzt Dr Fornet and Frau Oberstabsarzt Dr Hamann Dr Hermann Generaloberarzt Dr Hoffmann and Frau Dr Ad Jacob Dr Jacobsohn Sanitätsrat Dr Kronthal Mangold Dr Meissner Sanitätsrat Dr George Müller and Frau Dr Müllerheim Müller-Vanden Elas Sanitätsrat Dr Oesterreicher and Frau Dr Pfachler Dr Plonski and Frau Dr Longs Dr Röhr and Frau Sanitätsrat Dr Sand Dr Sandecker Dr Schonwald Dr Schwarz and Frau Herr Sembdner Dr Silberstein and Frau Sanitätsrat Dr Steinthal Frau Dr Stelzner Prof Strauss and Frau Dr Ullstein Geh Regierungsrat Dr Weber Oberstabsarzt Dr Weber Dr Wegener Dr Weidemann Frau and Fräulein

From Charlottenburg Berlin Dr Arth Fränkel and Frau Prof Heller Dr F M Simons

From Dahlem Berlin Dr Baumgarten and Frau

From Friedenau Berlin Dr Engel Herr Engel Dr Rosenberg

From Grünewald Berlin Prof Schreiber

From Lichtenberg Berlin Dr Selig

From Neukölln Berlin Fräulein Dr Ethel Blum.

From Rummelsburg Berlin Dr Heldenfeld

From Schlachtensee Berlin Dr Kallscher

From Steglitz Berlin Dr T Mayer

From Arnsberg Regierungs u Medizinalrat Dr Schneider

From Bochum Sanitätsrat Dr Lindemann.

From Bonn Dr Brockhoff Privatdozent Dr Zurhelle Dr Zurhelle

From Bamberg Dr Reichert Dr Seeber

From Brandenburg Dr Kroner

From Braunschweig Geh Medizinalrat Dr Engelbrecht.

From Breslau Herr Ehrlich and Frau Dr Loebinger Medizinalrat Dr Martini Sanitätsrat Dr Moeser Dr Oppler and Frau Geh. Med Prof Partsch Herr von Schoenfeldt Dr Veith and Frau Dr Winkler

From Camberg Nassau Dr Fluck

From Coblenz Dr Bodenbach Sanitätsrat Dr Heigl

From Cologne Prof Pröbsting Herr Jos P Tonger

From Danzig Privatdozent Dr Decker Herr Fleischer Dr Sober Herr Steinbrück.

From Dessau Sanitätsrat Dr Klauder

From Dortmund Dr Neuschmidt

From Dresden Dr Dufeldt Stadtrat Koeppen Dr Fritz [illegible] Dr Weber Dr Würkert Hofrat Dr Zucker

From Düsseldorf Prof Hoffmann Frau and Fräulein Dr [illegible]

From Erlangen Prof Graser Oberstabsarzt Dr [illegible] and Frau

From Essen Ruhr Dr Hauptmeyer Dr Hirschmeyer

From Frankfort Dr Auerbach and Dr Cahen Brach.

From Giessen Geh Med. Dr Vossius

From Gorlitz Sanitätsrat Dr Menzel

From Grimma Dr Kindt

From Halle/S Dr Pielitz

From Hamburg Dr Franke and Frau Dr [illegible] and Frau Oberarzt Dr Mond and Frau Prof Pfeiffer Dr [illegible] Dr Thost and Frau

From Hannover Dr Billeb and Frau Dr [illegible] Dr [illegible] and Frau

From Heidelberg Dr Caan

From Insterburg Sanitätsrat Dr Sinnecker and Frau

From Jena Geh Hof Prof Gaertner

From Kolberg Geh Med Dr Behrend and Oberstabsarzt Dr Glatzel

From Karlsruhe Dr Buchmüller Dr Levinger

From Kiel Prof Müller Reiner

From Kiel Wik Generaloberarzt Dr Richelot

From Kl Dexen Herr Hoehne

From Königsberg Dr Bongers Dr Dobbelin Sanitätsrat Dr Ebel and Frau Medizinalrat Dr Fortstreuter Prof Hoeftman Dr Lehmann

From Landsberg/W Geh Med Dr Friedrich

From Lechhausen Dr Heldmann

From Leipsic Sanitätsrat Dr Carstens Dr Kühne Dr Mechler and Frau Frau Herbst Mechler Dr Nauenburg Hofrat Prof Pfaff Sanitätsrat Dr Schwabe and Frau Dr Unger and Frau

From Lemberg Dr Sandauer

From Ludwigshafen/R Hofrat Dr Rembe

From Magdeburg Sanitätsrat Dr Braune Frau Ebering Dr Therig and Frau

From Mannheim Dr Nerlinger

From Munich Hofrat Dr Brunner Ministerialrat Prof Dieudonné Dr Fordan Dr Galli Prof Gebele and Frau Hofrat Dr Werner Ministerialrat Dr Zahn and Frau

From Neisse Dr Bernatzky Dr Jaeckel

From Nürnberg Dr Merkel and Frau

From Pforzheim Dr F Müller

From Ragnit Dr Rubinski

From Schwetzingen Medizinalrat Dr Henrici

From Senftenberg Sanitätsrat Dr Reinach

From Stettin Dr Kirstein

From Bollinken Stettin Sanitätsrat Dr Steinbrück and Fräulein

From Stuttgart Dr Brigel Dr Kiefe Dr Krauss Dr [illegible] Dr Stern

From Swinemünde Dr Schiemann

From Tichau Dr Weissenberg

From Villingen Baden Dr K Mayer -

From Weimar Geh Hof u Geh Med Dr Pfeiffer

From Wismar Dr Allerhand Medizinalrat Dr Unruh

From Wittenberge Dr Hilfer

AUSTRIA HUNGARY

From Arad Dr Barra

From Graslitz (Boh) Dr Lein

From Graz Dr Pollak

From Karlsbad Dr [illegible] and Frau

From Nagyvarad (Hungary) Dr Barkovits and Frau

From Salzburg Sanitätsrat Dr [illegible] Dr Kraft

From Spalato Dr Stalof Ivo

From Vienna Prof Hirschl Privatdozent Dr [illegible] Kohn Prof Schattenfroh Dr Winternitz Privatdozent Dr von Wunschheim

HOLLAND

From Amsterdam Privatdozent Dr [illegible] and Frau

From Breda Dr Romeyn

ITALY

From Bordighera Prof Galli

From Rome Dr [illegible] and Frau

RUSSIA

From [illegible] Herr [illegible]

From Moscow Dr [illegible]

From Riga Dr [illegible] Frau and [illegible]

From Warsaw Dr [illegible] Frau Dr Bursca

From [illegible] Dr [illegible]

SPAIN

From Lisbon Prof de Gama Pinto and Frau.

SWITZERLAND

From Bonfol Dr Gerber
From Bern Dr Walthard
From Solothurn Dr Pfaehler

LONDON LETTER

(From Our Regular Correspondent)

LONDON, August 17, 1912

Bathing Habits

At the Royal Sanitary Congress held at York, Dr Quine of Manchester read a paper on the degree of personal cleanliness among different classes of people, the result of elaborate inquiry Among 40 000,000 of our people, he said, the basin was the only washing vessel 'We English people are not nearly so clean as we are supposed to be." The bath was not nearly so popular as was supposed In some hotels not more than 1 per cent of the guests use the bath on any day, in others the percentage was stated to be as high as ten Cold baths were used almost exclusively by men The order of frequency in which the different classes of persons took baths was also very interesting Those who had the daily bath habit seemed to belong principally to the type of public school men and were mostly the young and early middle aged As years increased the daily bath habit seemed to decline Military men came first, with racing men a good second No evidence was discovered which would lead one to conclude that bathing accommodations were unduly taxed whenever a congress of medical men or sanitarians was held in any town Nor was there sufficient evidence forthcoming to form any general opinion as to the bathing habits of the clergy, their average did not seem to be high But no doubt the cost would, in their case, be an important factor Other professional men were difficult to distinguish Commercial men did not appear to have acquired the habit of the daily bath In nationalities the following appeared to be the order of frequency of bathing Scotchmen, Englishmen Irishmen, American women, English women, American men, Frenchmen, Germans It seemed to be agreed that American women were less bashful than English women, and were not afraid to pass along corridors to the bathroom, while English women had very strong objections to doing so, and that this accounted for the fact that American women made greater use of the bathroom The latter were also apparently better provided with elaborate dressing gowns than were the English women He found no evidence that the comparative infrequency of bathing by American men was due to bashfulness The sanitary reform which was most urgently required in this country was increased facilities for personal and domestic cleanliness in the homes of the people by improved appliances

The Healthiest Country in the World

According to Mr G H Knibbs, commonwealth statistician, Australia is the healthiest country in the world, with the exception of New Zealand, which is a trifle healthier In Australia the death rate has fallen from 15 75 per 1,000 in 1884 continually to the present rate of 10 5 Only one other country in the world can show a better rate, New Zealand where it is 9 75 Infant mortality has shown a still more striking fall In 1880 there were 130 deaths per 1 000 births now the number is only seventy one

PARIS LETTER

(From Our Regular Correspondent)

PARIS, August 9 1912

Overcrowding of the Medical Profession and the Number of Medical Students

Official statistics this year show a diminution of the total number of medical students in France There are now 8,688 instead of 8,779 as last year The number of foreign students however, continues to increase, there are now 1,301 while in 1911 there were 1,280 The diminution of French medical students should be considered as a blessing for the overcrowded medical profession Unfortunately, it seems improbable that this diminution will continue since the number of students enrolled for the P C N (certificate of physics, chemistry and natural sciences) was 1 776 this year against 1,583 in 1911 Some physicians complain of the increasing number of foreign students, in whom they see future competitors, but, as the *Semaine Medicale* remarks, statistics prove that the great majority of foreign students come to France only to obtain medical instruction without the intention of obtaining the government doctorate, which gives the right to practice Few are enrolled even for the university doctorate

Of the 1,301 foreign medical students in France there are 840 from Russia, eighty seven from Turkey, sixty four from Bulgaria, fifty seven from Roumania, twenty six from Greece, twenty five from South America, ten from Central America and four from the United States

Honor to Dr Magnan

Dr Valentin Magnan, physician in chief at the Sainte Anne Asylum, has just retired In honor of the great alienist the city of Paris has decided to name after him the pavilion—Pavillon Magnan—of which he has been director since 1867

Dr Pozzi's Mission in South America

Professor Pozzi, who for two years was in charge of scientific expeditions in Argentine and Brazil, has returned to South America Under the direction of the minister of public instruction, he will make a study of medical instruction and the instalment of the hospitals in Rio de Janeiro, Buenos Aires and Santiago, Chile

The Third International Congress of Deaf-Mutes

This congress, held in Paris, August 1 to 3, brought together more than 600 deaf mutes from all parts of the world Its sessions coincided with the festivities held at Paris and Versailles in honor of the bicentenary of the birth of the Abbé de l'Epée, the founder of the Institution nationale des sourds muets, who taught deaf mutes to make themselves understood by means of a language of conventional signs The members of the congress, whose speeches were translated alternately [illegible] signs and by words, took up the subjects of profess[illegible] instruction, instruction in arts and higher instruction [illegible] social situation of deaf mutes, their admission into liberal and artistic careers, questions of insurance, etc The question which occupied the greater part of the session and aroused the most interest related to the kind of instruction that should be given to deaf mutes Most teachers of deaf mutes in France and foreign countries are in favor of the vocal method Curiously, most of the deaf mutes are hostile to this form of instruction, although it renders their relations with those who speak and hear easier They are in favor of a mixed system consisting of words for communicating with normal persons, and conventional signs for conversation among deaf mutes

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN Aug 10, 1912

Personal

Wundt, the distinguished professor of psychology at Leipsic, celebrated his eightieth birthday, August 16 The noted scientist was educated as a physician and at the beginning of his career was privat docent in physiology at Heidelberg On account of his studies in the application of physiologic methods to psychologic problems Wundt was called to Zurich as professor of philosophy in 1874 He did pioneer work in psychiatry in the development of experimental psychology His work in the principles of psychology, logic, ethics, popular psychology, etc is well known

Professor Eversbusch, director of the Munich university eye clinic died August 7 at the age of 59, a short time after an attack of apoplexy He was a pupil of his predecessor, Professor Rothmund In 1882 he joined the faculty of Munich, was called to Erlangen in 1886 as regular professor, and returned to Munich in 1900 as director of the eye clinic Among his numerous literary efforts may be mentioned especially his monograph dealing with the relations of the diseases of the nose and of the ear to those of the eye, which was published in the large Handbuch der gesamten Augenheilkunde by Graefe Saemisch, and the treatment of the eye in the well known Handbook of Therapy" by Penzoldt and Stintzing His last work would have been a revision of his contribution to the 'Handbuch der Therapeutischen Technik edited by J Schwalbe Eversbusch was highly esteemed both as a physician and as a teacher

Prof A Rosenberg, who was for many years the assistant of Prof Bernard Fraenkel died, July 31, at the age of 56 only six months after his teacher He received general recognition as secretary to the International Congress of Laryngology held last year in Berlin His literary services were chiefly in the field of therapeutics

August 3 Professor Bernstein, formerly director of the Institute of Physiology at Halle, celebrated the fiftieth anniversary of his doctorate.

August 9, Honorary Professor Dr Gustav Fritsch of Berlin celebrated the golden anniversary of his doctorate Fritsch has rendered great service in the fields of histology and anthropology In 1887 he was appointed director of the department of microscopic biology in the newly erected institute of physiology under DuBois Reymond Of especial importance were his investigations early in the seventies in conjunction with Hitzig on the localization of the motor centers in the cerebral cortex His studies of the brain of the fish, by which further evidence was afforded of the analogous structure of the central nervous system of all vertebrates, are well known, as are his studies on electrical fishes His work on the form of man for artists and anthropologists is of general interest A short time ago he delivered an address in the anthropologic society on the racial characters of human hair, illustrated by numerous microscopic preparations, in which he is a master

Professor Matthes, who had received an appointment as successor of Lichtheim, has unexpectedly decided to remain in Marburg So far nothing definite is known as to the reasons for this surprising declination

Foundation of German Hospital in Hongkong

According to the newspapers an American woman has left in her will to two German physicians practicing in Hongkong the sum of $62,500 (250 000 marks) for the erection of a German hospital

Vision Tests for Chauffeurs

At the request of the Bavarian Automobile Club, the Munich Ophthalmologic Society has given an expert opinion as to the power of vision to be required of an automobile driver, of which the following are the principal points 1 For the central acuity of vision in the better seeing eye a power equal to two thirds the normal, and in the weaker eye a power equal to one third the normal should be required, and this should hold good for all drivers whether the visual power is attained with or without glasses Glasses for correction may be worn but must not be stronger than eight diopters Reserve glasses are necessary and also the driver who wears glasses should be provided with a wind shield when rain or snow is falling and this should have a window that can be opened 2 At the time of application for license as chauffeur an examination of the field of vision with the perimeter should be made and a plainly recognizable contraction of the field of vision in one eye should exclude the applicant from securing a license 3 In the same way a noticeable diminution of sensibility to light should prevent him from obtaining a license 4 Congenital color blindness is of no moment for guiding an automobile 5 The following diseases of the eye shall exclude the applicant from license ptosis, paralysis of the eye muscles, notable disturbance of the mobility of the pupil, aphakia and, exceptionally external inflammations 6 The wearing of protective spectacles preferably of glass is to be recommended

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug 10 1912

Death of Professor von Neusser

By the death of Professor von Neusser, which took place a few days ago, the Vienna Medical School and University sustains a severe loss This physician was one of those few men whose genius at once attracts the attention of his contemporaries He was born in Poland After his graduation when assistant in one of the medical wards in the old General Hospital in Vienna, he used to make incredibly correct diagnoses which amazed his confrères as well as the pathologists When he was appointed as Kahler's successor, the majority of the faculty were rather opposed to him, for he had not belonged to the clique which was even then omnipotent in the University of Vienna but the students were and always remained in sympathy with the new professor He was a most remarkable teacher demanding from his pupils much knowledge, and giving them wonderful insight into the actual conditions of illness and the diseased human body He was a special worker and investigator in the problems of hematology, pellagra and disturbances of circulation and of the respiratory and alimentary organs while lately his clinic paid special attention to diseases of metabolism and of the internal secretion" of glands His lectures were generally thronged by students and numerous American physicians were regular listeners to his talks on differential diagnosis About a year ago he had to undergo an operation for what was thought to be hydronephrosis but which was an inoperable cancer of the kidney, the diagnosis of which he had made on himself before the surgeon could verify it *in vivo* His friends tried to hide the truth from him, and in this they succeeded at least he never asked after the operation what was the true nature of his sufferings He reached only the age of 60 years at which time he had been clinical professor in Vienna for twenty years At present his former assistant, Professor Tilleck has been asked to take charge of the clinic temporarily until its fate is decided It is not impossible that the three other medical clinics (Noorden, Ortner and Chvostek) will divide up among themselves the wards of Neusser's clinic while space will be gained thus for a third (new) surgical clinic, intended to serve as a propedeutic clinic for students of surgery

A Case of Small-Pox in Vienna

As the result of compulsory vaccination in this country, small pox has become so rare in Vienna that a single case attracts general attention The majority of our younger physicians have never seen a case when five years ago a small epidemic occurred in Vienna—altogether sixty two cases—this formed the only opportunity they have had since 1866 to study the disease in our city Now another case has been reported and it could be proved that the patient had brought the disease from Constantinople where he had been on business within the last week before his illness All the necessary precautions have been taken to prevent further spreading of the disease The course of illness was very mild, the patient had been vaccinated when a boy of 7 years to which fact the slight degree of the attack is to be attributed

Cholera Appears Again in Austria Hungary

A fresh case of cholera has been reported in Hungary in the same district (near the Austrian frontier and in close business relations with Vienna) where it had raged last winter and where it had been pronounced extinct Last year our board of health was successful in warding off the dreaded disease from our own country The cool summer of this year —the coolest on record since 1775 and showing the highest amount of rainfall for July and half of August—is very favorable for an eventual explosive appearance, therefore the population has been warned to be on the lookout

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Marriages

FREDERICK VAILE OVERMAN, M D Indianapolis Ind to Miss Elizabeth Lee, of Lafayette, Ind, August 9

EUGENE T HANCOCK, M D Philadelphia to Miss Edna E Hornsby of Harborton, Va August 9

ALFRED S MASCHKE, M D Cleveland O, to Miss Selma Klein, of Lorain, Ohio, August 11

ISAAC JOHN KING GOLDEN, M D to Miss Annette Elizabeth Green, both of Chicago July 25

WILLIAM M CAMPBELL, M D to Miss Natalie Clark both of St Joseph Mo August 10

RICHARD BEASON SHORT M D Bedford Ind to Miss Edna Comley of Indianapolis July

JAMES MINES GODFREY M D to Miss Kate Weaver both of Philadelphia August 15

JOHN M BECK M D to Miss Laura B Post both of Louisville Ky, August 15

Deaths

Frederick F Hoyer, M.D University of Buffalo N Y 1844 said to have been the oldest practitioner in New York City a member of the Medical Society of the State of New York president of the Erie County Medical Society in 1880 and made an honorary member in 1908, physician to the Erie County Insane Asylum and Alms House from 1861 to 1863 died at his home in Tonawanda August 10 from heart disease aged 90 The honorary pallbearers at his funeral were physicians of Erie County

Frances Augusta Scranton Tenny, M D University of Michigan, Ann Arbor 1877 a nurse during the Civil War a member of the Kalamazoo Academy of Medicine [illegible] Bronson Hospital Kalamazoo August [illegible] aged 82

Andrew J Brockett, M D University of Michigan, Ann Arbor, 1862, formerly a member of the American Medical Association, assistant surgeon of the First and Forty Fourth Ohio Volunteer Infantry throughout the Civil War, for thirty years a practitioner of Bristol, Ohio, but later a resident of Cleveland, died at his home, August 12, from cerebral hemorrhage, aged 76

Irving Ellis Kimball, M.D Medical School of Maine, Brunswick, 1876, a member of the American Medical Association and American Laryngological, Rhinological and Otological Society, consulting surgeon on diseases of the nose and throat to the Maine General Hospital and Maine Eye and Ear Infirmary, Portland, died recently at his home in that city, aged 60

George Washington Simpson, M.D College of Physicians and Surgeons, Baltimore, 1873, a member of the American Medical Association, for twenty years a chaplain in the U S Army, and for the last fifteen years in charge of the religious and medical work at the Johns Hopkins Colored Asylum, died at his home in Baltimore, August 18, from heart disease, aged 71

McCandlish Monroe Moran, M.D University College of Medicine, Richmond, 1901, formerly a member of the American Medical Association, member of the Medical Society of Virginia, of Pinners Point, formerly surgeon for the Atlantic Coast Line System, was found dead in his room in the Neddo Hotel, August 12, it is supposed, from heart disease, aged 38

Thaddeus Lindley Robertson, M.D Jefferson Medical College, 1861, a surgeon with Hill's brigade of cavalry in the Confederate service throughout the Civil War, for thirty years a member of the Medical Association of the State of Alabama, one of the first members of the State Board of Medical Examiners, died at his home in Birmingham, August 16, aged 76

Edward G Steinmetz, M.D Long Island College Hospital, Brooklyn, N Y, 1867, formerly a member of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, for several years a member of the Board of Education of Hokendauqua, Pa died at his home, August 12, from phlebitis, aged 68

William I Cowie, M.D McGill University, Montreal, Que, 1895, a member of the Piscataquis County (Me) Medical Society for several years a surgeon on transatlantic steamers, but later a practitioner of Guilford, died in a hospital, Bangor, August 4, six weeks after an operation for appendicitis, aged 43

Daniel Gardener Mason, M.D New York University, New York City, 1879, formerly president of the Monroe County (N Y) Medical Society and a charter member of the Rochester Academy of Medicine, died at his home in East Henrietta, N Y, August 12, from septicemia, aged 57

Edward B Root, M D Albany (N Y) Medical College, 1856, surgeon of the One Hundred and Sixty Eighth New York Volunteer Infantry during the Civil War, for nearly fifty years a practitioner of Painesville, Ohio, died in the Painesville Hospital August 9, aged 80

L Alonzo Glaze, M.D Vanderbilt University, Nashville, Tenn, 1881, University of Nashville, 1882, local surgeon of the Illinois Central and Big Four systems at Grayville, Ill, died in an infirmary in St Louis, August 11, from carcinoma of the liver, aged 54

Isaac Hull Platt, M D Long Island College Hospital, Brooklyn N Y, 1882, for several years a practitioner of Brooklyn and later of Lakewood, N J, a grandson of Commodore Hull, eminent as a Baconian, died at his home in Wallingford, Pa, August 14, aged 59

August Rauscher, M D University of Vienna, Austria, 1855, a member of the American Medical Association, an expert mineralologist, but since 1882 an active practitioner of Murray, Utah, died at his home in South Cottonwood, August 15, aged 79

Abram B Williams, M.D Jefferson Medical College, 1863, a member of the Missouri State Medical Association a specialist on diseases of the eye and ear, in St Louis for many years died at his home in Bedford, Ind., August 6, aged 77

William Gray Miller, M D Western Pennsylvania Medical College, Pittsburgh 1898 surgeon of volunteers during the Spanish American War with the rank of major, died at his home in New Castle, Pa August 16, from uremia aged 38

George H Vaupell, M.D Rush Medical College, 1896 Chicago Homeopathic Medical College, 1897, of Chicago died suddenly at Antioch, Ill., August 19, from cerebral hemorrhage, aged 53

William Douglas Thomason, M.D University of Alabama, Mobile, 1898, a practitioner since 1890, died at his home in Toulminville, Ala, August 13

John Lark Stockdale, M D Medical College of the State of South Carolina, Charleston, 1855, a member of the Medical Association of the State of Alabama, a Confederate veteran, died in Talladega, August 11, as the result of a fall, aged 81

C Annette Buckel, M.D Women's Medical College of Pennsylvania, Philadelphia, 1858, known as "The Little Major" on account of her service in hospitals during the Civil War, died at her home in Piedmont, Cal, August 17, aged 73

James Thomas Eason, M D Tulane University, New Orleans, 1897, a member of the board of health of Grand Lake, Ark and a member of the Chicot County Medical Society, died at his home August 9, from malaria, aged 47

William Clarke, M.D Detroit Medical College, 1871, College of Physicians and Surgeons, New York City, 1877, for many years a practitioner of Lamont and Grand Rapids, Mich, died in Lincoln, Neb, August 12, aged 68

Franklin Richard Garlock, M D University of Pennsylvania, Philadelphia, 1870, a member of the State Medical Society of Wisconsin, and a veteran of the Civil War, died at his home in Racine, August 13, aged 71

Pardon Leland Kimball, M D University of Buffalo, N Y 1880, a veteran of the Civil War, formerly a practitioner of Illinois and Iowa, died at his home in Long Beach, Cal, recently, aged 71

William Giddings Peterson, M.D Vanderbilt University, Nashville, Tenn, 1894, president of the school board of Port Lavaca, Tex, died at his home, August 10, from typhoid fever, aged 39

Alvin T Heavenrich, M.D Miami Medical College, Cincinnati, 1904, a member of the American Medical Association and a practitioner of Seattle, Wash, died in Cincinnati, July 31, aged 29

Frank T Cochran, M.D Jefferson Medical College, 1872, formerly coroner of Columbia County, and health officer of Hudson N Y, died at his home in Hudson, July 18, aged 50

J Howard Beck, M.D University of Pennsylvania, Philadelphia, 1882, a member of the American Medical Association, died at his home in Philadelphia, August 15, aged 59

John Keck, M D Homeopathic Medical College of Missouri, St Louis, 1869, died at his home in Camp Meeker, Cal, recently, aged 71

Charles Richards, M D University of Buffalo, N Y, 1904 died suddenly at his home in Sturgis, S Dak, August 4, from nephritis, aged 40

Daniel Meagher, M D Queens University, Kingston, Ont, 1867 of Montreal, died in Kingston, August 10, from heart disease, aged 68

John Frederick Hilton, M D University of Vermont, Burlington, 1892, died at his home in Phillips, Me, August 1, aged about 45

Luigi S Jadarola, (license, California, 1894), a practitioner for twenty eight years, died recently at his home in San Francisco

Henry Jackson, (license, Board of Examiners Eclectic Medical Society of California, 1846), died recently at his home in Likely

David Smith Humphreys, M.D Tulane University, New Orleans 1885 died at his home in Greenwood, Miss, July 20, aged 51

Thomas Adams, M.D Trinity Medical College, Toronto Ont 1901, of Columbus, Ohio, died in Denver, August 7, aged 35

Richard M. Fulkerson, M D Eclectic Medical Institute, Cincinnati 1870, died at his home in Mounds, Ill, August 11, aged 73

Frederick C Boyd, M D Queens University, Kingston, Ont 1911, died at his home in Kingston July 5, from tuberculosis aged 23

James Peterson McInerney, M D McGill University, Montreal, Que, 1884, died at his home in St John, N B, August 8

Rawley E Ice, (license, West Virginia, 1881), of Logansport died August 12, a few hours after a surgical operation

Ezbon Churchill, M.D University of Vermont, Burlington, 1872 died at his home in Woodstock N B, August 8

Hugh Walker, M.D Queens University, Kingston, Ont., 1897, died recently at his home in Elsinore, Cal aged 39

Luis Fatjo, M.D University of Barcelona, Spain, 1888, died recently at his home in Volta, Cal.

The Propaganda for Reform

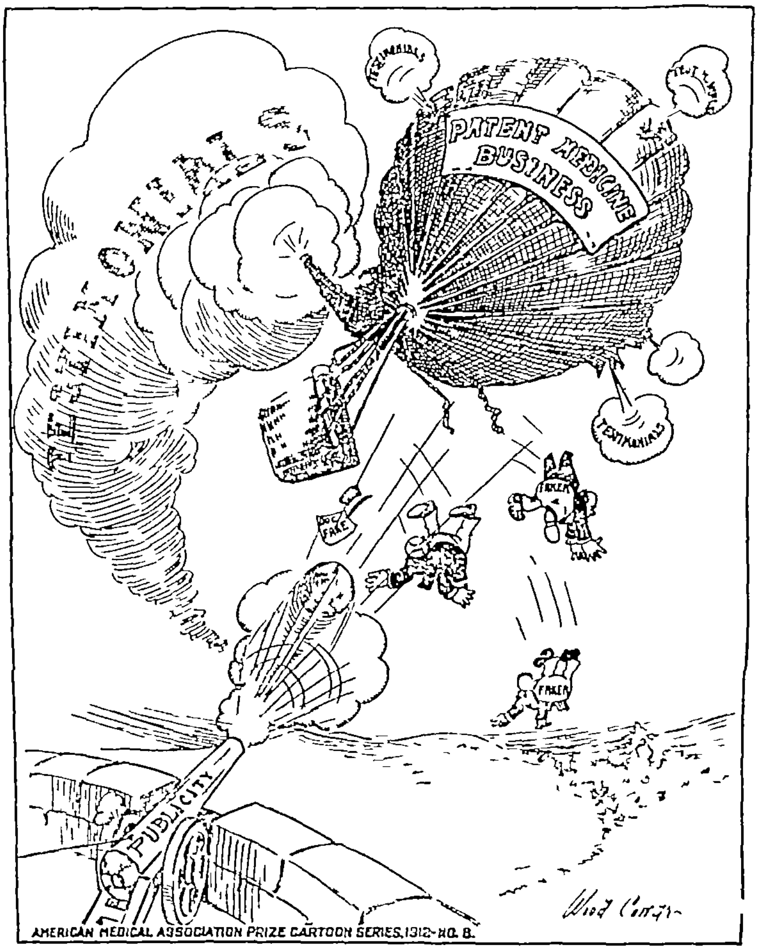
In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

VIBURNUM COMPOUND—AND OTHER NOSTRUMS

A number of drugs have some reputation for therapeutic value without there being any particular evidence to substantiate the claims Viburnum, concerning which we recently received the following letter, is one of these drugs

To the Editor —Have you made an analysis of Viburnum Compound? Extravagant claims are being made for it and I cannot put my hand on any data A patient has asked me concerning it and I wish to advise her honestly I do not know but that there may be several viburnum compounds I rarely use any of these put up preparations and hence know but little about them

A J Hesser M D
Pittsburgh Pa



YOU CAN'T FLOAT A BALLOON WITHOUT GAS

No analysis of Hayden's Viburnum Compound, to which our correspondent refers has been made in the Association laboratory According to advertising circulars the preparation contains American skullcap (*Scutellaria lateriflora*), cramp bark (*Viburnum opulus*) and wild yam (*Dioscorea villosa*) Since these drugs contain no well defined therapeutically active ingredients, an analysis of the preparation would necessarily be unsatisfactory

There are a number of drugs which have in some way obtained a reputation as being valuable in the treatment of diseases of women without their therapeutic claims ever having been proved It is said that some were used by the aborigines for such affections and we find a considerable number of them combined in various nostrums (sometimes with therapeutically active drugs) and exploited for the cure of female disorders under most extravagant and usually absurd claims Thus Pierce's Favorite Prescription" is advertised as containing black cohosh blue cohosh, goldenseal, lady's slipper and false unicorn root Dioviburnia" (Dios Chemical Co) as containing American skullcap, cramp bark wild yam blue cohosh black haw star grass, trailing arbutus and false unicorn root Viburnumal (Louisville Pharmacal Works) as containing American skullcap cramp-bark wild yam, star grass and motherwort

Most pharmaceutical houses following the lead of nostrum makers, put similar mixtures on the market, for example Elixir of Viburnum Compound" (Nelson Baker & Co) is said to contain cramp bark, American skullcap and wild yam Elixir of Hydrastis and Viburnum Compound' (Smith, Kline & French Co), cramp bark goldenseal Jamaica dogwood and pulsatilla, 'Elixir of Hydrastis and Cramp Bark Compound (Parke Davis & Co) cramp bark hydrastis, Jamaica dogwood and pulsatilla Fluid Extract of Cramp Bark Compound' (H K Mulford Co) American skullcap, cramp bark and wild yam, 'Mother's Cordial' (Eli Lilly & Co), cramp bark, blue cohosh, false unicorn and squaw vine, 'Uterine Sedative Elixir" (Eli Lilly & Co) cramp bark goldenseal Jamaica dogwood and pulsatilla, Vibutero' (Fred Stearns & Co), cramp bark, wild yam black haw squaw vine, Jamaica dogwood, saw palmetto and pulsatilla Practically all of these drugs (except goldenseal) are ignored in the standard works on pharmacology Further, the results of a careful examination by the Council on Pharmacy and Chemistry of the therapeutic claims made for most of them shows that these claims are not sustained by reliable clinical experience

The fact is that the popularity of preparations of this kind is purely an artificially created one A nostrum containing let us say extractives of some little used or worthless drugs is put on the market and heavily advertised Should it be advertised in a manner to make it sell a host of imitations appear and the large pharmaceutical houses put out substitutes for it The uncritical physician does the rest He prescribes it indiscriminately in the class of cases for which it is advertised Naturally a certain proportion of the patients who take it recover and the recoveries are credited to the nostrum A vicious circle is thus established and the demand for the stuff increases Its sale and the sale of similar products continues until the overwhelming experience of those who have prescribed it proves it uselessness In the meantime the manufacturers have reaped a harvest at the expense both of the public and of the medical profession And the manufacturers excuse for putting such absurd "specialties" on the market is that physicians prescribe them!

MISSOURI PROGRESSIVE

We quote from the July 1912 *Journal of the Missouri State Medical Association* a part of the minutes of the last annual session of that body

Dr A W McAlester Jr Kansas City introduced the following resolution

Whereas The American Medical Association has been doing effective work to counteract the influence of [illegible] and whose advertising [illegible] carry [illegible] fraudulent [illegible] ments therefore be it

Resolved That it [illegible] Missouri State Medical Association [illegible] or papers in medical journals which are not in sympathy with the purposes of this organization and further

Resolved, That members are hereby requested to cease publishing original articles or other matter in journals whose advertising pages contain fraudulent and questionable advertisements and to give loyal and constant support to the *Journal of the Missouri State Medical Association*

Dr F J Lutz, St Louis "In moving support of this resolution, I want to say that this association has grown large and powerful and is so necessary to every physician in this state that we can declare our opinions openly and fearlessly, even though it will be some time before all our members can be persuaded to live up to them Those who have followed the literature of this country as represented by medical journals have long been familiar with the fact that there are two groups, one in sympathy with us, practicing what they preach, the other doing as their pocket books are served The Journal of the American Medical Association has waged a war against certain interests opposed to us This war was started by Dr Moore of this association, who gave impetus many years ago to our warfare against proprietary medicines The Journal of the American Medical Association has carried this war to a logical conclusion We see our members enjoying the benefits of our own association and assisting month after month by publication in the opposition journals scientific contributions which make it possible for those same journals to go to proprietary medicine men and others and tell them 'our journal is supported by the main men in the medical profession, and you should advertise with us' In the meantime the organized profession of the country is fighting these immense pocket book concerns I believe that we should set the seal of our disapproval on our members who furnish articles for these opposition journals There are plenty of journals in this country who believe as we believe, who are ethical and in which all the contributions can be published with benefit This association should follow up the good work started with the resolution of Dr Moore in St Louis several years ago We should not only condemn the medicine, but fight the man who lets s articles go to these journals in opposition to our inciples"

Moved and seconded that the resolution be referred to the Council Carried Report of the Judicial Council

"In the matter of the resolution submitted by Dr McAlester we express our approval of this resolution and recommend its adoption " It was moved that the report be received and adopted The motion carried

A QUEEN AND A PROPRIETARY

A Hamburg manufacturing chemist, named Wasmuth, sent to the obstetrician of the queen of Holland a sample of a remedy which he claimed would facilitate delivery As the queen soon afterward passed through a normal childbirth, Wasmuth advertised extensively that the favorable course of the delivery was due to the action of his remedy Rad Jo The obstetrician, Professor Kouwer of Utrecht, brought suit in Germany against Wasmuth for unwarranted statements, as of course Kouwer had taken no notice of the proprietary sent him He won his suit and a fine was imposed on Wasmuth, as was mentioned in The Journal at the time Wasmuth recently republished the same statements in a German magazine Kouwer brought suit again and again he was awarded damages, this time $200 (1,000 marks)

Correspondence

The Mystery of Miasma as Darwin Saw It

To the Editor—In his comprehensive notes on organic life, during the voyage of the *Beagle* Darwin just missed disclosing the role of the Anopheles mosquito At Callao, July 19, 1835 he wrote

"The attacks of illness which arise from miasma never fail to appear most mysterious So difficult is it to judge from the aspect of a country whether or not it is healthy that if a person had been told to choose within the tropics a situation appearing favorable for health very probably he would have named this coast The plain round the outskirts of Callao is sparingly covered with a coarse grass, and in some parts there are a few stagnant, though very small, pools of water The miasma in all probability arises from these for the town of Arica was similarly circumstanced, and its healthiness was much improved by the drainage of some little pools The island of St Jago, at the Cape de Verde, offers another strongly marked instance of a country which any one would have expected to find most healthy being very much the contrary I have described the bare and open plains as supporting, during a few weeks after the rainy season, a thin vegetation which directly withers away and dries up At this period the air appears to become quite poisonous, both natives and foreigners often being affected with violent fevers On the other hand the Galapagos Archipelago in the Pacific, with a similar soil and periodically subject to the same process of vegetation, is perfectly healthy In all unhealthy countries the greatest risk is run by sleeping on shore Is this owing to the state of the body during sleep, or to a greater abundance of miasma at such times? It appears certain that those who stay on board a vessel, though anchored at only a short distance from the coast, generally suffer less than those actually on shore"

C H Preston, Davenport, Iowa

Some Cautions Concerning Sex Instruction for Children

To the Editor—In the matter of sex instruction the results of experience ought to be carefully gathered If what is called "experimental pedagogy" is essential in any field of education, it is most emphatically so in this The mentality of the child is so very complicated that it is quite impossible to foresee what will result from change in methods of bringing up relative to sex.

Information came to me the other day from a reliable source, relative to the effect of a change of policy from the old explanation of "the doctor and the stork" to the scientific statement that the baby grows in the body of the mother, and is born, after fully grown, from its mother A group of intelligent parents decided that they would tell no lies about the new babies, but would explain human generation somewhat fully in reply to questions by their wondering offspring The children of this somewhat segregated group of parents were themselves playmates in a group and all went well until a boy from the outside, a little older in body and in knowledge entered into relations with these children brought up on scientific knowledge He had information to give that completed the answer to the mystery of birth Interest on the part of the children had become very keen, and one of the girls had fully made up her mind that she would like to have a baby just as her mother had A baby would be better than a doll

The stranger from outside gladly supplied the information as to what to do to have a baby and the little girl who wanted a baby chose the boy she wanted for its father, and they performed the act of copulation the fact and purpose being well understood by all the children in the group Then came a time of great expectations on the part of all This consequence of scientific information and of the abnormally definite interest which it had created was quite intelligently secreted from the parents by instinct, and the knowledge of this sexually abnormal state of mind on the part of the children and of the extent to which imitation of parents had gone did not reach the parents until the expectations of the children seemed to them very long in fulfilment Finally, one of the smallest of the girls told her mother all about what was happening Her instinct for keeping secret the great affairs of her child world was not so keen as that of others The parents had a meeting for consultation, and decided during vacation from school, to separate the children and to think the situation over

This incident seems to me to teach three points of great importance to those who are interested in sex instruction

1 Moral instruction, not physiologic relative to sex should begin early in the lives of children Modesty should be awakened in the girls and boys, and they should be led to see that standards for them are different from those which animals fulfil Its chief idea should be that it is wrong to allow the thoughts and conversation to dwell on these sex matters Purity of mind should especially be emphasized, so *as to turn the children away from talking and observation* relative to sex Children need to appreciate early the fact that it is foul minded for human beings to be thinking "smut' for their own amusement Sex has its place in human life, but it is unladylike and unmanly to be looking and thinking at and about sex matters for amusement Human beings control their interest in this phase of life

2 The questions about sex come to children's minds before their capacity to utilize scientific information is developed The old policy of holding back the interest of young children in sex by giving them the simple fiction of the "doctor and the stork" is wise in theory as well as in experience. It satisfies their minds and deadens their interest It does not turn their thoughts to their own bodies, and set them going through the string of questions which follow naturally and which for the child has an accumulating interest

3 When the child becomes seriously dissatisfied with the fiction of the "doctor and the stork," then it is old enough to be instructed in sex physiology but the foundation of modesty should have been laid beforehand, and should be very carefully built on at this time, so as to furnish a guiding morality to the child while it ponders the new facts, and interprets the actions of animals therefrom Mere ignorance of sex physiology is not accountable for much wrong in younger child life ignorance of the moral standards of true men and women in sex matters is a menace to the child world The mind of the child should be nurtured in modesty from its earliest years, and the sacredness of the person sexually should be inculcated progressively in both boys and girls and maintained as part of the discipline of the home

MILTON FAIRCHILD Baltimore

Director of Instruction, National Institution for Moral Instruction

The Picture Show and the Propaganda for Reform

To the Editor —I dropped into a picture show out here in the desert and saw an intensely dramatic reel that interested me *The story told is as follows A mother and two small* children are left by the death of the father, the little his labor had saved The widow reads the "ad" of the Vampire Investment Company" which promises 30 per cent, and invests all, then promptly loses all She then endeavors to support herself and the two little ones by the sewing machine but it is a losing fight Lack of food, squalid quarters and tuberculosis soon place the mother in a pauper's grave The last of the reel shows the two ragged, starved waifs, the boy with a few papers, standing by the mother's grave

The reel made a deep impression one could scarcely hear the clicking of the machine for the sniffling of the audience I did not sniffle but I became possessed with the idea that such a device would be of great value in The Propaganda for Reform"

I will borrow ten to start the fund to stage the show, when you want it let me know

RICHARD C MCCLOSKEY, Ogden, Utah

A Chinese Hermaphrodite

To the Editor —Chinese speak of the *yin yang ren* or female male individual as if they were well acquainted with the fact that such cases exist but after twenty two years of experience in one of the largest cities in West China, with a daily clinic of seventy five to 100 and 150 or 200 in patients each month, I have now seen my first case In some respects it is similar to the case reported by Dr F M Prince of Birmingham, Ala, in THE JOURNAL, April 27 (p 1278)

The patient a rather mannish looking individual with a mannish voice, aged 26, presented herself at our clinic, complaining of a tumor (tender) in the left labium majus She had been married at 16 but her husband had deserted her a short time afterward She had never menstruated

Examination revealed a left inguinal hernia pouching into a large labium majus but in addition to the hernia could be made out a small tender body lower in the labium, which felt like a testis or ovary Examination of the right labium revealed a second tender body on that side In their position over the pubic bones they caused the patient discomfort The labia minora were small, the clitoris about 1 inch long and proportionately large the hymen was present the vagina a small pouch, extended about 1½ inches beyond the hymen The urethral orifice was normally placed but continuing to the base of the clitoris, one could see the shiny surface of the anterior wall of the male urethra

At the operation the funicular processes on both sides were found to be patent with a fully formed testis on each side with omental hernia on the left side Smears from the cut surfaces of the epididymi which were a trifle smaller than ordinary, showed numerous spermatozoa

J H MCCARTNEY Chungking, China

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed Every letter must contain the writer's name and address but these will be omitted on request

THE HARMLESSNESS OF DISTILLED WATER

To the Editor —You speak of distilled water as though it were injurious (July 27 p 294) Can water be too pure? What is the matter with distilled water? C H

ANSWER —On theoretic grounds, to say the least, the use of distilled water for drinking is unphysiologic This is, of course, due not to the fact that the processes of distillation have been resorted to but rather to the complete absence from the water of dissolved substances Many animal cells speedily disintegrate when they are immersed in distilled or other 'pure" water The osmotic relations between water and solutions of salts, etc, such as are represented by the protoplasmic juices, lead to a rapid diffusion current and the entrance of water into the cells, causing them to swell and disintegrate, precisely as red blood corpuscles will hemolyze in distilled water

It should be noted however that ordinary drinking water is far from isotonic with animal fluids and tissues, so that the differences between it and distilled water are merely those of degree Whether or not drinking water of any sort is irritating to the gastric cells with which it early comes into contact depends on local conditions If the stomach is completely empty an unpleasant response may be initiated It is not a rarity to find individuals who are unable to drink water on an empty stomach, with comfort Near one of the German university cities there is a very pure spring known popularly as the *Giftquelle* [poison spring] The designation is said to have arisen from the fact that nausea occasionally is evoked in those who drink from it The water is exceptionally deficient in dissolved substances

In every day experience however water is not regularly taken into an empty stomach so that the presence of contents helps to avert the objections raised above Isotonicity is further, speedily established by secretion into the hypotonic fluid and lastly the gastric membrane is usually covered with a protective layer of secreted mucus The combination of factors relieves us from the likelihood of distress or detriment under ordinary circumstances

CHOICE OF PHYSICIAN IN STREET CAR ACCIDENT

To the Editor —At a certain point on its line a traction company retains three physicians without fixed salary as company surgeons and pays for whatever service they render A car on this road struck a wagon and injured the driver of the wagon who was [illegible] an employee of the trolley company It was not determined who was responsible for the accident None of the company surgeons being accessible another physician was called by an employee of the company This physician cared for the immediate needs of the injured man and had him taken to a hospital Here one of the company surgeons asked the first physician to perform the operation made necessary by the injury The authorities of the trolley company reached the hospital after the operation had been completed and notified the first physician that his services were no longer required The patient [illegible] as to which physician should be retained and he expressed no preference possibly because he was dazed as a result of the accident Which physician should be continued in charge of the case—the one who first responded to the call or the regularly retained company surgeon? Which physician should state the question of choice of physicians to the patient when he can choose? L. R.

Answer.—In the case in question, the trolley company, when one of its employees called a physician, made itself responsible for the care of the injured man, and the company was within its rights in choosing the physician So long as the injured party was passive, the corporation had a right to employ and to dismiss the physician Up to this point the trolley company assumed responsibility for the patient and was debtor to the physician employed for the service rendered

When the patient becomes conscious and is in mental condition to make a choice or when his responsible caretaker arrives and assumes responsibility, another condition arises Now the patient or his next friend has the right to choose the attendant The physician the railroad company has placed in charge may be continued and an agreement made between the company and the patient as to which shall pay the physician, or the patient may, without conference with the company, choose the physician at the time caring for him or another, and himself assume the responsibility for the payment for the service of this chosen physician If either physician solicits the patronage of the patient, he degrades the profession. Especially is this true if he asks to be retained or to be employed on the plea that he has a technical right to serve the patient Both physicians interested in this case may be sure that the patient and his family as well as those interested in the management of the trolley road will be well informed concerning the incidents For either physician to continue in charge except through the choice of the party responsible, whether because of relationship or the responsibility of caring for the injured which public sentiment fixes on public carriers, will reflect on the professional dignity of that physician Under such conditions, to use an Irish bull, "a good loser wins"—the commendation of the public

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TECHNIC OF THE SULPHUR REACTION OF SALOMON AND SAXL

To the Editor —Please describe the technic of the sulphur reaction of Salomon and Saxl referred to in the abstract from the *Hospitalstidende* July 3 1912 p 761

O C Breitenbach, Frazee Minn

Answer.—The technic of the reaction was described in The Journal, Oct 28, 1911, p 1496 The following are directions given by Salomon and Saxl in the *Deutsche Medizinische Wochenschrift*, Jan 11, 1912, p 53 150 c c of albumin free urine are diluted with 100 c c of water and mixed with 150 c c of Salkowsky's mixture of barium salts which consists of two volumes of a saturated solution of barium hydroxid and one volume of a saturated solution of barium chlorid The mixture is filtered and to 300 c c of the filtrate are added 30 c c of hydrochloric acid, specific gravity 1 12, and the mixture boiled on an asbestos mat for fifteen minutes and then left on the water bath until the precipitate settles clear, being kept always covered with a small funnel It is then very carefully filtered and 200 c c. of the filtrate are heated on the asbestos mat for fifteen minutes with 3 c c of perhydrol (See N N R., p 172, 1912 edition) and poured into a conical glass After from four to seven hours a positive result of the reaction will be indicated by the precipitate of barium sulphate contaminated with coloring matter which settles to the bottom Precipitates which appear later are not regarded as characteristic

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TYPHOID INOCULATION IN CHILDREN—SCOPOLAMIN IN OBSTETRICS

To the Editor —1 Please refer me to literature on the results of typhoid inoculation in children

2 What is the present-day teaching with regard to the value of scopolamin (hyoscin) in obstetric practice? G S M. Georgia.

Answer—1 After searching through our indexes for the past two years, we are unable to find any article on the subject

2 Scopolamin or hyoscin used in combination with morphin to alleviate the pains of labor was at first heralded as a most valuable adjunct to obstetric practice It has been extensively tested in several European clinics and the results of these tests have been largely unfavorable It has received no extensive application by American obstetricians The general opinion of the Germans is that the great danger is to the child, not to the mother On the part of the mother, the general opinion is that there is a diminution in strength and vigor of the contractions, lengthening the duration of the labor, causing more frequent operative interference and leading to an atonic condition of the uterus, post partum, with hemorrhage It also interferes with bowel peristalsis and bladder function after labor Occasionally women show an idiosyncracy against it, and for this reason it is important that the patient be under constant and careful supervision when it is administered.

On the part of the child, scopolamin morphin shows toxic effects frequently, a large percentage of infants being born severely asphyxiated, many requiring constant attention for some hours to keep up respiration, while others are born dead because of an overdose of the drugs

The morphin is probably the dangerous ingredient in the mixture and the results obtained should serve as a warning against any method of anesthesia in labor which involves a continuous benumbing of the sensibilities of the mother with opium or its derivatives It is well known that infants are more susceptible to opium than adults, so that a dose which proves only stupefying to the mother is likely to be fatal to the infant If an anesthetic must be used it should be temporarily and for such use ether is best adapted

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INFORMATION ABOUT THE PULMOTOR

To the Editor —Please give information concerning the pulmotor indications for using it and the method cost etc I particularly wish to ascertain if it would be of service in mine work

F J R

Answer.—The "pulmotor" is an apparatus, originating in Germany, for the purpose of supplanting the usual methods of artificial respiration in persons asphyxiated from any cause, using oxygen as the respiratory medium The apparatus is contained in a case about the size of an ordinary suit case which may be carried about It consists of a tank containing pure oxygen under high pressure, a reservoir in which the pressure is reduced to the required degree, a flexible tube and face mask for delivering the gas, connected with a valve or motor operated by the gas pressure, which alternately sends the gas into the lungs and creates a vacuum or negative pressure which causes an outflow from the lungs, thus imitating the normal respiration Roth (Mechanical Artificial Respiration, *Berl Klin Wchnschr*, Sept 18, 1911, p 1729) states, on the basis of experiments conducted on animals and bodies with this apparatus, that it produces a true artificial respiration, he says that it is rather startling to see the chest of a dead body rise and fall in apparently natural respiratory movements Experience is necessary to get the best results or, as Roth says, the development of a technic He has found that the danger of injury to the lungs is negligible, perhaps, but that as some of the gas goes through the esophagus into the stomach, undesirable or dangerous pressure may be caused on the heart, as he found in one instance in an experiment on a large dog One of the instruments available for public service in Chicago has been used in instances of gas and narcotic poisoning, asphyxiation from drowning, etc, and, according to newspaper reports, in many instances with success It would no doubt be applicable to cases of asphyxiation from mine gas poisoning or in anesthetic accidents. Its cost is about $125

THERAPEUTIC LITERATURE FOR PATIENTS

To the Editor —Some time ago there was published in The Journal a list of helpful books for patients on the general subject of suggestion and encouragement I have vainly sought to find this list through the index and otherwise but have been unsuccessful Please refer me to the list.

James A O'Reilly M D Brooklyn

Answer—Our correspondent probably refers to a list of books given in an article by Everett J Brown, which was published in The Journal, June 29, 1912 p 2030 There was also a list of books on mental healing given July 29, 1911, p 408

DATA WANTED ON TRANSFUSION OF BLOOD

To the Editor —Surgeons who have performed direct transfusion of blood are requested kindly to send me a report of their cases as I am completing a work on the clinical value of transfusion Full credit will be given to each surgeon for his cases I especially desire the report of unsuccessful cases. A L Soresi M D

75 West Fifty Fifth Street New York

A MEMORIAL TO DR McCLINTIC SUGGESTED

To the Editor —Cannot some steps be taken toward securing a memorial to perpetuate the name and fame of that martyr to scientific medicine Dr Thomas B McClintic—a hero no less worthy than any who have sacrificed their lives in the Army or Navy?

F S. Suddarth, M D *Grafton W Va*

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST GRADUATE WORK CONTRACT PRACTICE LEGISLATION MEDICAL DEFENSE AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

GENERAL FEDERATION OF WOMEN'S CLUBS ON PUBLIC HEALTH

One of the most important topics discussed at the eleventh biennial convention of the General Federation of Women's Clubs, held in San Francisco in July, was the improvement of public health conditions This great body of cultured, intelligent and enthusiastic women wields an enormous influence, and is capable of securing far reaching reforms It has always stood squarely for sanitary progress At the tenth biennial meeting, held in Cincinnati in 1910, resolutions endorsing the Owen bill were adopted, since which time the General Federation of Women's Clubs has been one of the strongest and most influential advocates of this measure At the San Francisco meeting the endorsement of a national department of health was reaffirmed Several other important resolutions on health matters were also adopted The following resolutions were adopted at the San Francisco meeting

WHEREAS The General Federation of Women's Clubs through the health department has done an excellent work in educating the women of America to the great need concerning human life be it therefore

Resolved That we reaffirm our previous declaration advocating the union and strengthening of the various governmental agencies relating to pure food quarantine vital statistics and human health Thus united and administered without partiality to or discrimination against any school of medicine or system of healing they would constitute a single health service not subordinated to any commercial or financial interests but devoted exclusively to the conservation of human life and efficiency and be it further

Resolved, That this health service should cooperate with the health agencies of our various states and cities without interference with their prerogatives or with the freedom of individuals to employ such medical or hygienic aid as they may see fit

WHEREAS Accurate registration of births and deaths is the essential basis for intelligent efforts to conserve infant life to secure the education of all children and to protect their working life and legal rights therefore be it

Resolved That the General Federation of Women's Clubs requests the Children's Bureau to prepare in brief form for popular distribution such material as may be available concerning the present degree of registration of births and deaths in this country and the best methods of securing complete returns.

WHEREAS England Germany France Sweden and nearly all the enlightened nations of the world have proved that medical inspection of schools for the avoidance of contagion and the correction of physical defects that outdoor schools for the physically weak and that the employment of competent school nurses have proved useful in lessening truancy decreasing absence from sickness and alleviating suffering therefore be it

Resolved That we recommend to the Federated Clubs the necessity for carrying forward such plans as shall relieve physical defects and educate the young for stronger bodies and more wholesome living

WHEREAS Innocent women and children of our land are the greatest sufferers from venereal diseases in the marriage relation be it therefore

Resolved That the General Federation of Women's Clubs puts itself on record as believing in properly endorsed certificates of health or of freedom from venereal disease for all applicants for marriage licenses and be it further

Resolved, That this same body urge the respective states to pass a law similar to that of Indiana which requires such a certificate

Adopted

The Constitution of Protoplasm.—That living protoplasm is a colloidal solution of the nature of an emulsion is the idea put forward a short time ago by Lepeschkin in a preliminary paper on the structure of protoplasm Under certain conditions this emulsion may become transformed into gelatinous foam with fluid honeycomb like walls Further, the colloidal parts, in which Brownian movement is exhibited, probably consist of a great variety of heterogeneous compounds Owing to the slow movement of the colloid material, chemical change in any part is not distributed immediately but tends to cause changes in the protoplasm at that particular part These changes are evidenced by movements such as contraction of the cell or by the separation of special substances These movements etc, accelerate the motion of the plasma, and in this way the effect of the stimulus is eventually distributed to all parts —*British Medical Journal*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS Coliseum Annex Chicago September 24-26 Sec Dr James A Egan Springfield

IOWA Capitol Bldg Des Moines September 11-13 Sec Dr Guilford H Sumner State House

MASSACHUSETTS State House Boston September 10-12 Sec Dr Edwin B Harvey Room 159 State House

NEW YORK September 17-20 Chief of Examinations Division Mr Harlan H Horner Department of Education Albany

Georgia May Report

Dr C T Nolan, secretary of the Regular Board of Medical Examiners of Georgia, reports the written examinations held at Atlanta, May 1, 2, 3 and 4 and at Augusta May 16-18 1912 The number of subjects examined in was 10, total number of questions asked 100 percentage required to pass 80 The total number of candidates examined was 184 of whom 172 passed and 12 failed Six candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent
Birmingham Medical College	(1911)	82
George Washington University	(1910)	87
Howard University Washington D C	(1910) (1911)	84.5 80
University of Georgia	(1911) (1912)	86.5 80, 80, 82.5, 83, 83, 84, 84.5, 85, 85, 85.5, 85.5, 85.5, 86, 86.5, 87.5, 87.5, 88.5, 89, 89, 89, 89, 89, 89.5, 90, 90, 90.5, 91.5, 91.5, 94.5, 95
Atlanta College of Physicians and Surgeons	(1910) (1912)	84.5 80, 80, 80.5, 81, 81, 81.2, 81.5, 81.5, 81.5, 81.5, 82.5, 83, 83, 83, 83, 83, 83, 83.5, 84, 84, 84.5, 85, 85, 85.5, 85.5, 85.5, 85.5, 85.5, 86, 86, 86, 86.5, 86.5, 87, 87, 87.5, 88, 88, 88.5, 88.5, 88.5, 88.5, 88.5, 88.5, 89, 90, 91.5, 92.5, 93.5, 94, 95
Atlanta School of Medicine	(1912)	80, 80, 80.5, 81, 81.5, 81.5, 81.5, 82, 82, 82.5, 82.5, 82.5, 83, 83, 83.5, 83.5, 83.5, 83.5, 83.5, 83.5, 84, 84, 84, 84, 84.5, 84.5, 85, 85, 85.5, 85.5, 86, 86, 86, 87, 87.5, 88, 88, 88, 88.5, 88.5, 88.5, 89.5, 90
University of Louisville	(1909)	85
Tulane University of Louisiana	(1901) (1910)	75 83.5
Johns Hopkins University	(1903) (1904) (1911)	90 90 87
Woman's Medical College of Baltimore	(1897)	83
Baltimore Medical College	(1898) (1904)	82.7 90.5
University of Maryland	(1908) (1910)	83 83
College of Physicians and Surgeons Baltimore	(1911)	85
College of Physicians and Surgeons Boston	(1905)	84
Leonard Medical School	(1908)	87.5
St Louis College of Physicians and Surgeons	(1898)*	
University of Pennsylvania	(1911)	85.5
Jefferson Medical College	(1901) (1909)	85 85.5
Medical College of the State of South Carolina	(1903) (1904) (1911)	92 92 83.5, 86
Meharry Medical College	(1908) (1912)	80 80, 81.5, 81.5, 82, 83, 85, 86
Vanderbilt University	(1909) (1911)	93.1 87.5
Memphis Hospital Medical College	(1904) (1911)	84 90
Chattanooga Medical College	(1910)	84
University College of Medicine Richmond	(1911)	86
University of Virginia	(1902) (1905) (1908) (1909) (1910)	80 85 87 85 79.5

FAILED

College	Year Grad	Per Cent
Howard University Washington D C	(1912)	72
Atlanta College of Physicians and Surgeons	(1912)	71.5
Atlanta School of Medicine	(1912)	77.5
College of Physicians and Surgeons Boston	(1911)	71.5
University of the South	(1905)	65
Chattanooga Medical College	(1907)	73
Meharry Medical College	(1912)	74, 76.5, 76.5, 76.5, 77
University of Tennessee	(1910)	71

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
Rush Medical College	(1895)	Indiana
College of Physicians and Surgeons Chicago	(1894)	Michigan
University of Louisville	(1884)	Michigan
University of Maryland	(1904)	Maryland
Michigan College of Medicine and Surgery	(1900)	Michigan
University of Minnesota	(1906)	Tennessee

* Licensed on diploma

Nebraska May Report

Dr C P Fall secretary of the Nebraska State Board of Health reports the written examination held at Lincoln May 22-23 1912 The number of subjects examined in was 10 total number of questions asked 100 percentage required to pass 75 The total number of candidates examined was 59 of whom 56 passed and 3 failed Fifteen candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent
Hahnemann Medical College and Hospital Chicago	(1911)	81
Chicago College of Medicine and Surgery	(1[illegible])*	

Rush Medical College	(1912)	82 9
Bennett Medical College	(1912)	80 1 81.9 83.7
College of Physicians and Surgeons Keokuk	(1876)*	
University of Michigan, Dept of Med and Surg	(1911)	75 6
University Medical College, Kansas City	(1912)	83 9 86 2
Cotner Medical College	(1893)	81 6 (1899) 80 1 (1911) 75 (1912) 76 7 80 4 82 1 84 1
University of Nebraska	(1902)*	(1911) 85 1 (1912) 78 9, 81, 82 9, 84 9 86 4 88 7
Creighton Medical College	(1911)	79 9, (1912) 76 1, 76 7 76 9 78 4 78 4 78 5 79 1 79 6 79 7 80 80 2 80 6 80 7, 80 7 80 7 81 1 81 4 81 5 81 9, 82 82.1 82 6 83 5 83 7 84.5 85 9 86 2 86 6, 86 9 88

FAILED

Cotner Medical College	(1912)	74 2
Creighton Medical College	(1912)	74 2 74 2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Georgia College of Eclectic Medicine and Surgery	(1912)	Georgia
National Medical University Chicago	(1909)	Illinois
Northwestern University Medical School	(1910)	Illinois
Rush Medical College (1897) Minnesota	(1903)	Iowa
Chicago College of Medicine and Surgery	(1908)	Illinois
College of Physicians and Surgs Chicago (1901)	*(1910)*	*Illinois*
State University of Iowa College of Medicine	(1905)	Iowa
Western Eclectic College of Medicine and Surgery	(1908)	Kansas
Medical School of Maine	(1882)	Maine
Ensworth Medical College	(1909)	Kansas
University Medical College Kansas City	(1908)	Kansas
Eclectic Medical College Cincinnati	(1910)	Ohio
Cleveland Homeopathic Medical College	(1879)	Michigan

* No grade given

Michigan May Report

Dr B D Harison, secretary of the Michigan Board of Registration in Medicine, reports the written examination held at Detroit, May 16 18, 1912 The total number of subjects examined in was 14, total number of questions asked, 100, percentage required to pass, 75, and not less than 50 in any one subject The total number of candidates examined was 44, all of whom passed. Two of these candidates were previously registered on the basis of their diplomas The following colleges were represented

PASSED

College	Year Grad.	Per Cent
George Washington University	(1910)	85 7
Detroit Homeopathic College	(1912)	81 4, 82.5 82 8 84 3
Detroit College of Medicine	(1912)	75 75 2 75 6 77 2 78 8 78 9 79 2 79 6 80 2 80 3 80 9 81 6 81 7 81 8 82, 82.1 82 2 82 5 82 5 83 4 83 7 83 8 83 8 83 9 84 1 84 2 84 5 84 8 84 9 85 1, 85 6 86 1 86 3, 86 9 87 87 2 89 2

Kansas June Report

Dr H A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, June 11 14, 1912 The total number of subjects examined in was 10, total number of questions asked, 100, precentage required to pass, 75 The total number of candidates examined was 41, of whom 36 passed and 5 failed Twenty candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent.
Rush Medical College	(1904)	82 (1911) 80
Chicago College of Medicine and Surgery	(1912)	76
University of Kansas	(1912)	77 78 81 81 81 82 83 84 87 88
Kansas Medical College	(1912)	76 76 78 79 79 80 81 81 83
Tulane University of Louisiana	(1912)	86
Tufts College Medical School	(1907)	78
Kansas City Medical College	(1903)	84
University Medical College Kansas City	(1912)	76 77 79 80
Kansas City Hahnemann Medical College	(1912)	75 76 78 83 85
Ohio Miami Medical College	(1912)	87
University of Pennsylvania	(1908)	83

FAILED

University Medical College Kansas City	(1912)	65 69
Kansas City Hahnemann Medical College	(1912)	55 68
Memphis Hospital Medical College	(1912)	58

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons Chicago	(1910)	Illinois
Chicago College of Medicine and Surgery	(1910)	Illinois
Hahnemann Medical College and Hospital Chicago	(1891)	Indiana
Chicago Homeopathic College	(1897)	Illinois
Keokuk Med College College of Phys and Surgs	(1906)	Iowa
Drake University	(1886)	Iowa
Hospital College of Medicine Louisville	(1905)	Tennessee
Baltimore University	(1897)	Ohio
University of Michigan Dept of Med. and Surg (1903)	(1908)	Michigan
Hamline University	(1901)	Minnesota
American Medical College St Louis	(1906)	Nebraska
St Louis University	(1911)	Missouri
Barnes Medical College (1897)	(1901)	Missouri
Missouri Medical College	(1893)	Illinois
University Medical College Kansas City	(1907)	Missouri
St. Louis College of Physicians and Surgeons	(1898)	Illinois
University of Pennsylvania	(1894)	Missouri
University of Edinburgh Scotland	(1908)*	

* Licensed on endorsement of foreign credentials

Maryland Homeopathic June Report

Dr O N Duvall, secretary of the Homeopathic Board of Maryland, reports the written examination held at Baltimore, June 13 14, 1912 The number of subjects examined in was 8, total number of questions asked, 80, percentage required to pass, 75 The total number of candidates examined was 3, all of whom passed The following college was represented

PASSED

College	Year Grad.	Per Cent
Hahnemann Medical College and Hospital Philadelphia	(1902)	84 6, (1912) 89 2 89 3

Maryland June Report

Dr J McPherson Scott, secretary of the Maryland Board of Medical examiners, reports the written examination held at Baltimore, June 18 21, 1912 The number of subjects examined in was 9, percentage required to pass, 75 The total number of candidates examined was 146, of whom 112 passed and 34 failed Ten candidates have been licensed through reciprocity since Jan 1, 1912 The following colleges were represented

PASSED

College	Year Grad	Per Cent.
George Washington University	(1912)	81
Georgetown University	(1908)*	
Baltimore University	(1907)	76
Johns Hopkins University	(1906)	85 (1910) 83 (1911) 83 (1912) 76, 80 80 81 82 82 82 83 83 83 83 83 83 84 85, 85 86 86 86 86 87 87 87 88 88 88 88 89 89 89 89 89 90 90, 90 90 91 91 91 91 93 94
University of Maryland	(1905)	79 (1910) 76 (1911) 82 86 (1912) 75 77 78 78 78 78 79 80 80 81 82 82 83 83 84 84 85 85, 85 86 87 88 89 91
Baltimore Medical College	(1908)	79 (1911) 78 (1912) 77 81, 81 82 84 85 87, 87 88 88 88
Maryland Medical College	(1912)	75 79 81 84 87
College of Physicians and Surgeons Baltimore	(1912)	75 76 77 80 82 84.
University of Pennsylvania	(1912)	81
Jefferson Medical College	(1911)	82 82
Medico-Chirurgical College Philadelphia	(1912)	80 84 84 85 85
Woman's Medical College of Pennsylvania	(1910)	82 2 (1911) 79
Temple University	(1912)	76 81

FAILED

Georgetown University	(1911)	74
Howard University Washington D C	(1911)	63 68
Maryland Medical College	(1907)	63 (1910) 58 65 (1911) 64 (1912) 44 44 51 59 61 64 65 67 67 69 71 71 71 72 72, 73
University of Maryland	(1911)	70 (1912) 62 70 73 74
Baltimore Medical College	(1911)	74 (1912) 72
College of Physicians and Surgeons, Baltimore	(1912)	67 70
Johns Hopkins University	(1912)	64
Woman's Medical College of Pennsylvania	(1910)	67

LICENSED THROUGH RECIPROCITY SINCE JAN 1 1912

College	Year Grad.	Reciprocity with
University of Maryland (1898) West Virginia	(1904)	S Carolina
Baltimore Medical College	(1907)	Louisiana
Maryland Medical College	(1902)	Delaware
College of Physicians and Surgeons Boston	(1902)	Maine
University of Pennsylvania	(1910)	Virginia
Jefferson Medical College	(1904)	Delaware
Medical College of the State of South Carolina	(1906)	S Carolina
University of the South	(1908)	W Virginia
Medical College of Virginia	(1910)	Virginia

* Licensed by special examination

The following questions were asked

ANATOMY

1 What are the characteristics of the cervical vertebræ? 2. Describe the knee-joint 3 Origin course and distribution of phrenic nerve 4 Describe the prostate gland 5 Give origin course and termination of saphenous veins. 6 Of what does the sympathetic nervous system consist? 7 (a) What are the divisions of the brain? (b) Name the principal fissures (c) What fissures divide each hemisphere into lobes? (d) Name the lobes of the brain (e) Of what does the corpus callosum consist? 8 Gross anatomy of lungs 9 Give origin insertion and nerve-supply of the following muscles brachialis anticus infraspinatus pectoralis minor serratus magnus piriformis 10 Name visceral branches of abdominal aorta or what arteries supply the thyroid body and from what larger vessels are they derived

CHEMISTRY

1 Explain the following terms (a) reaction (b) nascent state (c) molecular weight, (d) colloid (e) valence and give an example of each 2 Describe in detail the chemical examination of a specimen of urine giving the tests used and the results you would expect if urine was pathological 3 Give one chemical antidote for each of the following (a) argenti nitras, (b) phenol (c) zinci

sulphas (d) arseni trioxidum (e) acidum sulphuricum 4 Define (a) amphoteric reaction (b) ptomaines (c) halogens (d) specific gravity, (e) calory 5 Give the chemical formula of each of the following (a) ethyl alcohol (b) methyl alcohol (c) iodoform (d) glycerin (e) benzine 6 (a) What are precipitins? (b) Lysins? (c) Agglutinins? (d) What is a toxin? (e) What is antitoxin? 7 What are normal and decinormal volumetric solutions? How are they made? 8 (a) How would you show the presence of organic matter in water? (b) Name the chief constituents of milk? (c) Give the properties chemical formula and uses of permanganate of potash 9 Describe Marsh s test for arsenic 10 Give a chemical classification of foodstuffs with an example of each

PHYSIOLOGY

1 Describe the physiologic changes in the uterine muscles during pregnancy and puerperium 2 Define systolic, diastolic and mean arterial pressure 3 Leukocytes (a) number normally (b) some of the conditions affecting the number (c) classification of the varieties 4 (a) Describe blood plates (b) Give three tests for blood 5 Define eupnea dyspnea hyperpnea and apnea. 6 Urine specific gravity reaction and average quantity in twenty four hours. Quantity of urea in twenty four hours 7 Aphasia Define the difference between sensory and motor 8 State what is known of the thymus gland 9 *Name four glands having internal secretions and* the effect of these secretions. 10 (a) Name the bile-salts. (b) The bile pigments. (c) Give Pettenkofer s test for bile-acid, and Gmelin s test for bile-pigment.

PATHOLOGY

1 Hookworm. Give scientific name life history and method by which infection occurs 2 Obstructive jaundice How caused? Mention four lesions causing this symptom What surgical significance has jaundice and why? 3 Define atrophy hyperplasia complement, thrombus and infarction 4 Mention three conditions not *obstructive that cause dyspnea Discuss one of the three named* and explain fully why it causes dyspnea 5 Describe the general method used to isolate and recognize bacteria 6 Describe the appearance and condition of the bladder late in a case of prostatic hypertrophy of long standing 7 Give the morbid anatomy of acute poliomyelitis 8 What is the vaccine which is used to immunize against small pox? How is it prepared? How does it act? 9 What are the distinguishing features of a malignant growth? 10 Give the morbid anatomy of emphysema

PRACTICE OF MEDICINE

1 Define *(a) Landry s paralysis (b) pellagra (c) nephrolithiasis* (d) dysphagia and name some diseases in which it occurs (e) cretinism 2 Define (a) percussion (b) menstruation (c) auscultation (d) succussion (e) palpation 3 Give differential diagnosis between membranous and spasmodic croup 4 Renal and hepatic colic 5 Peritonitis and enteritis. 6 Hysteria and epilepsy 7 Give treatment of pertussis 8 Give treatment of interstitial nephritis. 9 Give diagnosis and treatment of serofibrinous pleurisy 10 Give cause, diagnosis and treatment of tetanus

SURGERY

1 Define *proctoclysis* Describe its uses and mode of administration. 2 Describe Fowler s position and conditions adapted to its use 3 Define gastro-enterostomy Describe the operation and a case of a character requiring such a procedure 4 Hemorrhoids. Describe and give an operation for their radical cure 5 Mastoiditis. Causes and treatment 6 Ophthalmia neonatorum Causes and treatment 7 Define hyperthyroidism its diagnosis. Describe a case in your judgment requiring surgical treatment. 8 Colles fracture Describe and give its treatment 9 Describe pes planus. Give its cause and treatment 10 Define orchitis osteitis osteomyelitis

MATERIA MEDICA

1 Mention six methods of administering drugs and give one example of each method 2 Name some circumstances which may modify the effect of drugs 3 Name three drugs which act as circulatory stimulants and dose of each Name three circulatory depressants 4 Write a prescription for a 3-ounce mixture containing syrup of ipecac potassium citrate and syrup of wild cherry for a child 2 years old One for an adult containing arsenic strychnin iron and quinin in pill form using official names and endings. 5 Give official name and adult dose of calomel Epsom salts Hoffman s anodyne Brown s mixture paregoric, Fowler s solution and Donovan s solution 6 Give official preparations of digitalis with adult dose of each 7 What is an anthelmintic? Name three drugs used as such 8 What is the source of ichthyol iodin opium ergot and camphor 9 Give the average adult dose of potassium iodid compound jalap powder extract cannabis indica fluid extract of ergot and morphia sulphate 10 What is salicylic acid? How prepared and its salts

THERAPEUTICS

1 Write a prescription in Latin without abbreviation containing four ingredients which you would use for chronic bronchitis with abundant secretion with direction for use 2 Write a prescription in Latin *without abbreviation containing four ingredients which* you would use for an acute bronchitis with directions for use 3. Give the indications for and therapeutics of a venesection 4 Define chemical incompatibility and physiologic antagonism and write two prescriptions in Latin without abbreviation illustrative and explain the incompatibility and antagonism 5 What are the therapeutic uses of opium? Describe symptoms of poisoning and treatment 6. What are the therapeutic uses of strychnin Describe symptoms of poisoning and treatment 7 Describe means and method of inducing local and general anesthesia dangers and prevention 8 Give the therapy of digitalis and contra indications for its use 9 Give the physiologic action and therapeutics of santonin 10 Give the physiologic action and therapeutics of oleum ricini

OBSTETRICS

1 Describe the ovaries and their structure 2. What is puberty? 3 Describe the fetal heart sounds their rate when and where best heard? 4 Describe external pelvimetry 5 What is ballottement 6 How would you do a pubiotomy 7 What treatment would you use in the pernicious vomiting of pregnancy? 8 How would you treat inertia uteri during labor? 9 Describe the operation for ventrifixation and suspension. 10 Give treatment of acute infectious diarrhea in infancy

Book Notices

Modern Theories of Diet and Their Bearing on Practical Dietetics By Alexander Bryce M D., D P H (Camb) Cloth Price $2 10 net Pp 368 New York Longmans Green & Co 1912

The general scope of this book is best shown in an enumeration of the titles of the chapters Theories of Metabolism" (two chapters, seventy six pages), Vegetarianism in Theory and Practice," "Low Protein Theory and Practice "Purin Free or Uric Acid Free Diet in Theory and Practice " Hyperpyremia in Theory and Practice Dietetic Theories Associated with the Mineral Salts," Dietetic Theories Associated with Water,' The Theory and Practice of Efficient Mastication," The Curdled Milk Theory and Practice," "The No Breakfast Plan in Theory and Practice," Raw Food in Theory and Practice," Yeast Free Bread in Theory and Practice," "Forced Feeding in Theory and Practice Fasting in Theory and Practice " Conclusion—the Practice of Moderation" Except for the first two chapters the book can readily be understood by the intelligent lay reader although it is intended primarily for medical men The author discusses in a sane and moderate manner the various theories practices and fads in dietetics with which one comes in daily contact We know of no book that can be read more profitably and with such sustained interest by the physician or the intelligent layman who wishes to orient himself in this wilderness of dietetic theories and practices

Manual of Clinical Chemistry Microscopy and Bacteriology By Dr M Klopstock and Dr A Kowarsky Cloth Price $[illegible] Pp 371 with 59 Illustrations New York Rebman Company 191[illegible]

In these days in which the advances in clinical diagnosis are assuming such proportions a manual such as the above is of special importance In its preparation 'the needs of daily practice have been especially considered in the choice of methods of examination The authors have been successful in presenting clearly and concisely methods which are both simple and reliable All of the details essential for general work have been given so that one may be certain of the points involved in any test he may make

The subject matter is arranged in eleven chapters dealing with the examination of the various secretions and excretions of the body A special chapter treating of the usual bacteriologic methods will be found very serviceable The mechanical part of the book is excellent While the illustrations are entirely adequate, many of them might be much improved The book is commended especially to the general worker as a reliable outline of the more important phases of this extensive subject

Differential Diagnosis Presented Through an Analysis of 385 Cases. By Richard C Cabot M D Assistant Professor of Clinical Medicine Harvard University Medical School Second Edition Cloth Price $7 50 Pp 764 with Illustrations Philadelphia W B Saunders Company 191[illegible]

The frequent reprintings of the first edition of this book testify to its popularity among physicians and students In the second edition certain minor changes have been made including the introduction of two new cases and the correction of typographical errors The diagnosis of disease is discussed from the standpoint of the presenting symptom such as pain headache vomiting etc and cases are cited illustrating the various conditions which may give rise to the symptoms complained of This method of discussion offers a favorable opportunity for the teaching of rational therapeutics based on a knowledge of the underlying pathologic conditions

Text-Book of Medical Jurisprudence and Toxicology By John J Reese M D Eighth Edition Revised by D J McCarthy A B M D Cloth Price $[illegible] Pp [illegible] Philadelphia P Blakiston s Son & Co 1911

The eighth edition follows the main general lines of the seventh with some slight alterations and the addition of new matter The principal changes concern the subject of insanity which has been [illegible] and [illegible] more [illegible] [illegible] [illegible] adopted Anaphylaxis has been considered in [illegible] [illegible] to toxicology

Medicolegal

Chauffeurs Without Authority to Employ Physicians

(Habhegger et al vs King (Wis) 135 N W R 166)

The Supreme Court of Wisconsin reverses a judgment rendered in favor of the plaintiffs, physicians, remanding the cause with directions to render judgment for the defendant A boy had been run over and injured in the public street by a minor son of the defendant, while using the latter's automobile for his own pleasure or convenience, although it was stipulated on the trial that this was purely accidental, and without fault on the part of the defendant's son, who took one of the plaintiffs in the automobile to the hospital where the injured boy had been taken, informed the physician of what had occurred, and while at the hospital requested the physician to give the injured boy every attention to save his life The son did not attempt to contract on behalf of his father, nor did the plaintiffs communicate with the defendant at any time before the completion of the services When the injured boy was about to be discharged from the hospital, the hospital superintendent, in an interview with the defendant, told him that the boy's mother was poor and would probably never be able to pay for the hospital charges, and requested the defendant to do something toward paying the bill, whereupon the defendant paid the hospital bill, informing the superintendent that he was not responsible The second day after that he received a bill from the plaintiffs for their services He had heard that they were attending the injured boy at the hospital, but did not know they were making a claim against him until he received their bill, which he refused to pay The plaintiffs had a verdict finding that the son had general permission from his father to run and operate his father's automobile, and that the services in question were performed at the request of the son

The law relating to the agency of servants to bind the employer to pay for physicians or nurses in attendance on persons injured by the negligence of such servants will be found, the court says, in Adams vs Southern Railway Co, 16 Am & Eng Ry Cas (N S) *pp* 369 to 379 where the cases are collected Also in Hanscom vs Railway Co, 53 Minn 119 54 N W R 944, 20 L R A 695 The employment must have been of such a nature that this act of the servant is reasonably within its scope, as in the case of a general superintendent of a railway company general manager or agent, and by some authorities a railroad conductor These cases go largely on the corporate character of the employer, the usual practice pursued, and the great exigency which arises in railroad disasters and the dangerous character of the business A mere chauffeur or automobile driver in a town where the employer is known and can be readily reached by telephone, or by other speedy and certain means of communication would not ordinarily possess such authority Neither would an infant son using his father's automobile under like circumstances Besides, the stipulation that the injuries here were the result of mere accident, for which the boy in charge of the automobile was not to blame, cut away the groundwork of such implied agency, even if otherwise within the reasonable scope of employment, by reason of an implied authority to save the employer from damages caused by negligence of the employee The conclusion of the trial court that the boy had in law implied authority to employ physicians at the expense of his father was incorrect

Admissibility of Testimony as to Statements of Patient as to Past Condition

(Acme Cement Plaster Co vs Westman (Wyo) 122 Pac R 89)

The Supreme Court of Wyoming says that in this personal injury case against the company one of the physicians who attended and treated the plaintiff for his injury was called as a witness on behalf of the plaintiff and gave his opinion as to the extent and permanency of the injury and also as to the necessity for the performance of a surgical operation which had been performed on the plaintiff's head as a part of such treatment He was permitted to testify, over the objection of the defendant, to statements made to him by the plaintiff in relation to his condition, sensations and feelings in the past, which ruling was assigned as error The rule seems to be quite well settled that such statements of the party injured, narrative of past conditions or suffering, made by the ordinary witness are inadmissible in evidence, but a physician may testify to a statement or narrative given by a patient in relation to his condition, symptoms, sensations and feelings, both past and present, when such statements were received during and were necessary to an examination with a view to treatment, or when they are necessary to enable him to give his opinion as an expert witness This evidence was admissible for the purpose of affording the jury the means of determining the weight to be given to the opinion of the physician, but not as evidence tending to prove the actual condition of the plaintiff at the time of which he spoke, and the jury should have been so cautioned For the purpose indicated, there was no error in admitting the testimony

Society Proceedings

COMING MEETINGS

Amer Assn for the S and Prev of Inf Mort Cleveland Oct 2 5
Amer Assn of Obstetricians and Cynecologists Toledo Sept 17 19
American Association of Railway Surgeons Chicago Oct 16 18
American Electro Therapeutic Association Richmond Va Sept 3 5
American Public Health Association Washington D C Sept 18 20
American Roentgen Ray Society Niagara Falls Sept 11 14
Assn of Military Surgeons of the United States, Baltimore Oct. 1-4
Colorado State Medical Society Pueblo Sept 24 26
Conf State Bds of Health of N Am Washington D C, Sept 20 21
Delaware State Medical Society Wilmington Oct 8
Indiana State Medical Association Indianapolis, Sept. 26 27
Internat. Congress on Hygiene etc. Washington D C Sept 23 28
Kentucky State Medical Association Louisville Oct 29 31
Medical Association of the Southwest, Hot Springs Ark Oct 8 10
Medical Society of the Missouri Valley Council Bluffs Ia Sept 5 6
Medical Society of Virginia Norfolk Oct 22 25
Mississippi Valley Medical Association, Chicago Oct 22 24
Nevada State Medical Association Reno Oct. 8-10
New Mexico Medical Society Roswell Sept 12 14
Pennsylvania State Medical Society Scranton Sept. 23 26
Utah State Medical Association Ogden Oct 1 2
Vermont State Medical Society Montpelier Oct 10 11
Wyoming State Medical Society Sheridan Sept 17

MINNESOTA STATE MEDICAL ASSOCIATION

Forty Fourth Annual Meeting held at Duluth Aug 14 and 15, 1912

The President, Dr Haldor Sneve, St Paul, in the Chair

Officers Elected

The following officers were elected president, Dr Richard J Hill Minneapolis, vice presidents, Drs Henry C Cooney, Princeton and Samuel H Boyer, Duluth, secretary, Dr Thomas McDavitt, St Paul (reelected), treasurer, Dr Earle R. Hare, Minneapolis, and delegates to the American Medical Association, Drs Thomas McDavitt, St Paul, Leo M Crafts, Minneapolis and John W Andrews, Mankato

Post-Rheumatic Ankylosis

Dr **Ralph St J Perry**, Parker's Prairie Ankylosis may follow any form of articular rheumatism simple, gonorrheal or gouty, in any person of any age or sex, and the diagnosis, after excluding other diseases, involves chiefly the kind of ankylosis, its degree and duration *The treatment of post rheumatic ankylosis* is prophylactic and curative The corrective treatment can be divided into the manipulative, medicinal, operative and psychic Manipulation may be either manual or mechanical. The manual may be gentle and prolonged in character, but more satisfactory results in cases involving the extremities can be immediately and effectually secured by using forcible flexion and extension, breaking up all fibrous adhesions and giving the joint the fullest possible motion at one treatment

In aggravated cases of post rheumatic ankylosis, in which there is osseous union it becomes necessary to resort to arthroplastic operations When an arthroplastic operation is correctly performed in a suitable case, and the proper after treatment carried out there is a reasonable assurance that the patient will have a freely movable joint, free from pain and which will support weight and withstand traction

DISCUSSION

Dr R E Farr, Minneapolis These cases are instances of metastatic arthritis and if treated early, along the lines indicated by Murphy, ankylosis would be prevented. They are not cases of rheumatism at all, but are cases of septic metastatic arthritis

Dr Homer C Collins, Duluth We give this class of cases about as much attention, as a rule, as we do the ordinary neurasthenic

Dr Emil S Geist, Minneapolis One feature in the paper which impressed me was the value of massage in the after treatment of these cases

Dr D O Thomas, Minneapolis In a case of ankylosis of the shoulder joint, there being no movement, except that of the scapula, I anesthetized the patient, and broke the ankylosis, then kept up motion for two or three weeks, gave salicylates and the patient got entirely well

The Phthalein Test in a Group of Medical Cases

Dr Henry L Ulrich, Minneapolis My group of cases, fifty eight in number, as well as the number of readings, sixty two, are not large enough to draw definite conclusions That there is a reduction in the total amount and in the first hour when there is an acute condition of the kidney, my series gives satisfactory evidence In the mild chronic kidneys the slowly progressive diffuse nephritis, the findings are rather variable The readings gave evidence in the three cardiorenal cases which were consistent with the clinical improvements Finding two out of three obstetric cases at term below normal function raises the point whether most gravid women are low at this period From others of larger experience and from my own, I feel that the test will distinctly add to our knowledge of renal values both in kidney lesions as well as cardiorenal conditions That in chronic renal lesions repeated reading at short intervals will disclose some of the reasons for the variance which single readings so far have elicited Such a series may also throw light on the possible compensatory functions of other organs in cases of very low function and the patient may yet be in apparent general fair economy

DISCUSSION

Dr J M Lewis Minneapolis I have found this method of great assistance In cases of chronic nephritis, without albumin or casts, it affords the best method of diagnosis In cases of albuminuria of adolescence, it enables us to establish the best course of treatment and is the best guide to the diet and exercise In cases in which the urine is loaded with albumin and casts, it enables us to make a satisfactory prognosis If in cases of this type we find the elimination normal, we may hope the disease (parenchymatous) is of a favorable character or confined to one kidney, or that the kidneys may be suffering from disturbance in some other part of the body, and the patient may have good elimination indefinitely In surgical kidney by segregating the urine, it will show which kidney is capable of sustaining life and whether operation can be undertaken safely In my judgment this is the only sure method that shows the degree of disturbance of renal elimination

Suprapubic Prostatectomy

Dr E S Judd, Rochester Until within the past few years the perineal operation for removal of the hypertrophied prostate was the operation of choice in this country As advocates of this method we have argued first, that the mortality was less and, second that the time of convalescence was shorter since the perineal wound healed much more quickly than the suprapubic Studying the cases more carefully we have found that the mortality is not directly a result of the operation but that it depends on the functional capacity of the kidneys and the condition of the heart and general circulation and that it is the same with either operation We have been able to reduce greatly the mortality by proper preparation of the patient before operating

In the sixty nine cases operated on by the suprapubic route two were quite extensively infected Rather a small percentage of them healed without having had some urinary leakage through the wound though most of the wounds have entirely healed and the patients were able to go home within three weeks The patients have been much more comfortable during the period of convalescence have not had to contend with the urine soaked dressing, nor have they had the run of temperature and the sick appearance due to absorption from infection in this space that accompanied the old method While the patients have required considerable care during the first twenty four hours after the operation after that time they are much easier to care for, requiring very little dressing

While we have had some mortality in this series of cases it could not in any way be attributed to the technic of the operation and would have occurred no matter what operation was done If the patient be a bad risk especially if he has a cardiac complication, it will be best to introduce the suprapubic tube into the bladder for the first twenty four hours If the bladder has been completely sutured any clotting in the urethral catheter may cause considerable suffering In this series of sixty nine cases we have completely closed the bladder in fifty nine and used the suprapubic drain in ten

DISCUSSION

Dr John Butler Minneapolis Recently there has been considerable difference of opinion as to what has been removed and what is left behind after so called prostatectomy Freyer and others are of the opinion that the gland is removed *in toto*, whereas Zuckerkandl and others seem to agree that only the median lobe is hypertrophied, that all tissue anterior to the ductus deferens makes up what is known as the median lobe that it is the only part of the prostate which is hypertrophied. All tissue posterior to the ductus deferens shares in part in the hypertrophy but the anterior and posterior lobes through pressure of the hypertrophied median lobe forms the so called capsule of the prostate The muscular fibers in the hypertrophied portion are left after prostatectomy Thus so called prostatectomy is simply an intraglandular enucleation of the median lobe of the prostate

Dr F J Plondke, St Paul The mortality rate is not due to the operation *per se* The time element is a thing we must consider, whether we do the suprapubic or perineal operation We must give as little of the anesthetic as possible These patients are bad subjects for anesthesia, and that of itself is an argument in favor of the perineal operation In an experience comprising twenty five cases I have found the perineal operation satisfactory I have had but one experience with the suprapubic operation

Dr Frank Wright Minneapolis The mortality of prostatectomy is only a relative term The surgeon who operates on patients greatly advanced in years will have a much higher mortality than the man who operates on patients who are much younger I saw Zuckerkandl do seventy two perineal prostatectomies with spinal anesthesia without a death He said that if there is any mortality from perineal prostatectomy, it is due to the anesthetic It is dangerous to give a man over seventy years of age an anesthetic for any length of time on account of lack of elimination or kidney insufficiency

Dr J W Andrews, Mankato I favor the suprapubic operation For a number of years I resorted to the perineal operation but 33 per cent of the patients would come back complaining of having to get up too often at night to pass urine and they complained of frequent urination during the day I finally undertook the suprapubic operation and I have not a single patient operated on by this method have had urinary trouble following the operation

Dr Arthur C Strachauer Minneapolis The mortality following prostatectomy is largely due to shock [illegible] and kidney insufficiency I would emphasize the importance of ascertaining the condition of the kidneys before operation and [illegible] these cases should be given [illegible] for a long time

Intestinal Stasis With Special Reference to Lane's Short Circuiting Operation

DR ROBERT O EARL, St Paul From my experience with five cases of ileosigmoidostomy I am of the opinion that the colon should be removed at least to the splenic flexure in all cases in which ileosigmoidostomy is indicated, provided the patient's condition permits the extra operative procedure All of the patients were relieved of their obstinate constipation No patient was operated because of constipation but for the relief of definite symptoms of severe auto intoxication which refused to yield to other treatment The stools were diarrheal in character and rather frequent the first two to four weeks only, after which the stools have been soft and satisfactory except in the two cases in which the colon contains the fecal masses In these cases the stools are soft with hard lumps None complained of an excessive thirst Considering the fact that most patients who are subjected to short circuiting operations are physical wrecks enduring a miserable existence, the results are good I advise ileosigmoidostomy with colectomy only after non surgical treatment has failed and when a less formidable operation does not promise relief

DISCUSSION

DR. T W STUMM, St Paul I think we are prone to attach too much importance to auto intoxication from the intestinal tract There are doubtless cases in which we do have auto intoxication from the intestine where there is some definite pathologic process back of it, in which there was true organic obstruction For instance, around the splenic flexure of the colon there may be some trouble in those cases in which the mucous membrane has been injured in some way, so that absorption can go on much more readily than it could otherwise, but in ordinary cases of constipation, unless there is some pathologic condition existing in the way of adhesions or some inflammatory condition that exists back of it, I do not see the necessity of performing the operation described

Work of the Public Health Education Committee of the American Medical Association and Its Relation to the State and County Societies

DR LAURA A LANE, Northfield We are trying, first, to establish a committee for public health education in every county in the state where a regular standing committee on this work does not exist, second, to arrange for a series of public lectures in the larger cities and towns of the state, third, to urge the larger hospitals in the state to become centers of education in the prevention of disease, fourth, to establish a Health Day in the public schools, to urge on teachers and parents the importance of medical inspection in the schools, to secure the cooperation of the parents and schools in obtaining proper instruction of the young in practical hygiene and in sex hygiene, to secure regular courses in practical hygiene in our colleges and higher institutions of learning, fifth, to secure traveling libraries on hygiene and sanitation for rural communities, sixth, to provide health talks on the programs of teachers' institutes, farmers' institutes, and to foster the extension of rest rooms in rural towns for the farmers' wives

DISCUSSION

DR J P SEDGWICK, Minneapolis We are not doing justice to the women members of our association if we do not heartily support this very excellent movement

DR. S M WHITE, Minneapolis The work of this committee is very much more important than we realize, for the reason that the American Medical Association, and through it the American medical profession is definitely committed to the propaganda of health education among the public

DR. MARY S WHETSTONE, Minneapolis I want to emphasize one suggestion Dr Lane made, and that is, for the county physicians who have hospitals in the various towns to cooperate with this committee and have lectures emanate from the hospitals thus reaching patients in the hospitals, who come from the various rural districts, giving them the needed instruction as well as extending an invitation to the laity in the towns in which the hospitals are located to come and listen to the lectures In this way we can improve the opportunity to disseminate the knowledge which it has been suggested should come from the physician, and maintain the hold which we have on the confidence of the people

Surgery of the Gall Bladder and Ducts

DR ROLLO C DUGAN, Eyota That gall stones are the end result of an infection of the gall tract is now well recognized, but how to prevent this infection is not so clear In the cases of gall bladder disease in which I have operated, in persons who have been under my personal observation for fifteen or twenty years, the story has been about the same as in those who have come to me from other sources I have not been able, except in one or two cases that have had typhoid, to decide when the infection took place that resulted in the gall stones unless possibly influenza was the first offender, creating a condition of lessened resistance to the colon bacillus, the probable immediate cause That a large number of so called dyspepsias are cases of latent gall stones has been emphasized by Murphy and Mayo Murphy has called attention to the increased mortality in cases of stone in the common duct with fever in comparison to the same condition with the stone confined to the gall bladder, and explains it by the fact that the duct is very much richer in lymphatics than the gall bladder, thus increasing the constitutional poisoning In the past we have not sufficiently emphasize the danger of delay Murphy's dictum as to appendicitis is practically as applicable here, that the time to operate is "now," just as soon as the diagnosis is made

DISCUSSION

DR. E S JUDD, Rochester There is very little place for the medical treatment of gall stones It is purely a surgical condition when the diagnosis is made Going beyond the condition of gall stones, there is a condition of cholecystitis or inflammation in the gall bladder without stone It is a history which differs from gall stone disease, in that the trouble does not come on in the form of a colic, but is more apt to be in the nature of a constant pain in the region of the gall bladder When the abdomen is opened this condition of cholecystitis is first found The gall bladder is tense and cannot be collapsed by ordinary pressure Sometimes it requires two or three minutes pressure before the gall bladder can be made to collapse, and figuring that the cystic duct has a movement of one eighth of an inch and the common duct a movement of one sixth of an inch, it takes minutes to press the bile out If you cannot press out the bile, there is cholecystitis or inflammation of the gall bladder

DR A W IDE, Brainerd I desire to mention a case of gall stones in a child, four years and one month old The child had typhoid, which ran a mild course, about a year and a half previous to the onset of the gall stone trouble The child had quite a severe attack of abdominal colic. At first we made a diagnosis of appendicitis and operated On opening the abdomen the appendix was found not seriously diseased, but the gall bladder was distended and could not be emptied by pressure On opening the gall bladder quite a large quantity of bile was removed

Abdominal Incisions

DR R E. FARR, Minneapolis The transverse division of the rectus will give the operator the best chance to handle every conceivable form of pathology within the abdomen, with the possible exception of large solid tumors, with more convenience and speed and less retraction and handling of tissues with resulting trauma and shock, than will the classic method It is perfectly safe to divide the muscle transversely In the procedure of Pfannenstiel we have a rational, safe and convenient method of opening the lower abdomen which appears to have certain advantages over the vertical method and is worthy of more general use

DISCUSSION

DR. A W ABBOTT, Minneapolis There is one condition in which I dislike to use the Pfannenstiel incision, and that is in cases in which infection of the wound is inevitable In those cases in which the flap has been raised up so much, there is likely to be infection extending up the whole length of the part that is turned up with the development of an abscess there. I had one experience of that kind and since then have avoided this incision. It is true, in those cases you can make the incision clear through the muscle, go directly through everything, and you get a good chance for drainage in case any part of the wound should become involved.

DR. F. J. PLONDKE, St. Paul: In gall bladder cases, where we find it necessary to do a cystectomy, it is necessary, in addition to a vertical incision, to make a transverse incision. In those cases I think the incision that has been described is applicable, and it is a good thing to know we can do that without any great harm.

DR. E. R. HARE, Minneapolis: The character of the incision should depend largely on the nerve supply in the abdominal wall, for if we destroy the nerve supply we may have apparent or perfect healing for the time being, but later on there will be degeneration of the muscle involved in the incision, which will permit of a hernia following operative interference. The abdominal muscles are supplied by the intercostal, and in the upper third of the abdomen the intercostals pass inward and upward, in the middle third they pass transversely toward the center, and in the lower third they pass inward and downward, and we can adapt the transverse incision very nicely to the direction of these nerves and not involve the nerve supply of the muscles.

Vaginal Cesarean Section in Cases of Eclampsia, Placenta Prævia, Pernicious Vomiting and in Hemorrhage Due to Premature Separation of the Placenta

DR. H. C. COONEY, Princeton: Of the three women on whom I operated for eclampsia, one was advanced seven months in gestation and in labor, the other two were without pains, all were in coma, one so profound that no anesthetic was given. Ether and morphin were used in two cases. All of the mothers survived, and two of the infants. The seven months' fetus was asphyxiated at delivery. There were two patients with marginal placenta prævia advanced to the eighth and eighth and one half month respectively, both had suffered repeated hemorrhages, and were operated on by this route one during the interval between bleedings, and one during a rather severe hemorrhage; she was almost exsanguinated when seen, and made a tedious convalescence, which was complicated by a left femoral phlebitis. Both mothers and both infants survived. The remaining patient of this group operated on by this method was a much exhausted woman, the operations being done for the relief of toxemia of pregnancy with long continued and persistent emesis. She recovered from the operation without incident. Previous experience in similar cases with Bossi's dilator, which, even in expert hands I regard as a dangerous instrument, has induced me to discard it, together with the Champetier de Ribes bag, when the condition of the pregnant woman is such as in the cases whose clinical histories I have briefly outlined.

DISCUSSION

DR. A. W. ABBOTT, Minneapolis: There are certain cases in which I believe this operation is applicable, and those are the patients that have been mauled around by midwives and have been neglected until they have become septic. As to its value in the vomiting of pregnancy it is not frequently demanded. There is only one suggestion I would make in reference to the technic of the operation and that is one need not be afraid to cut the uterus, but let it tear, either that, or go through the perineum.

DR. B. W. KELLEY, Aitken: As to the necessity for rapid delivery I will say that in a series of several hundred cases in which statistics were obtained, it was found contrary to the general belief, that the mortality in these cases where forced delivery was resorted to was practically the same as that in which forced delivery had not been performed. The principal benefit to be obtained from rapid delivery or from forced delivery is the blood flow from the mother, and we obtain in that way practically the same results that we would from a venesection.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

American Journal of Diseases of Children, Chicago

August IV No 2 pp 65-128

1 History of Classification of Gastro-Intestinal Diseases in Ancient and Modern Times. I. A. Abt, Chicago.
2 *Studies in Bacteriology of Acute Intestinal Diseases of Infancy. B. S. Veeder, St. Louis, and R. Kilduffe and O. T. Denny, Philadelphia.
3 *Polycarbohydrates in Diet of Young Infant. J. M. Brady, St. Louis.
4 Appendicitis in Childhood. R. S. Fowler, Brooklyn.

2. **Bacteriology of Acute Intestinal Diseases of Infancy.**—The authors hold that the mere presence of a few dysentery organisms in a case of acute intestinal disturbance in an infant does not in itself prove that the organisms have any etiologic relation to the condition. It is only in the severe cases of ileocolitis that the dysentery organisms are present in the stools as one of the predominating types of organisms and it is these cases which show distinctive lesions of dysentery at autopsy. In only about 20 per cent. of the cases of ileocolitis occurring in infancy are dysentery organisms found. While in some of these cases the infection with dysentery organisms is primary, in others it is probably secondary. The cases of ileocolitis in which dysentery organisms are present cannot be separated clinically from those in which they are absent. Streptococci are present in the stools of about 80 per cent. of the cases of ileocolitis. While in the majority of these cases the relation is unimportant it is probable that in some instances the organisms have a distinct relationship in the etiology of the condition.

Out of nearly 100 cases examined during the summer they found but one with the *B. aerogenes capsulatus* and developing a growth in milk heated to 80 C. This child was placed on raw buttermilk, but died three days later. The gas formation, growth and sediments in the dextrose and lactose fermentation tubes varied to such a marked degree in different cases showing the same types of predominating organisms and in individual cases without apparent relation to the clinical condition or changes, that in reality this part of the study gave very little useful information. The same was the case with the growth on and liquefaction of gelatin plates.

3. **Polycarbohydrates in Diet of Infant.**—For over a period of eighteen months the authors have used the following mixture as the routine formula for new born infants. One and one half ounces by measure of barley flour is cooked with 16 ounces of water at least twenty minutes down to 10 ounces and added to 20 ounces of skim sweet or acidified milk. The latter we believe for many reasons is preferable in an institution. One half ounce by measure of cane sugar and 1 ounce by measure of malted food containing dextrin and maltose are added. The carbohydrate content of the mixture would be represented by lactose 2.66, cane sugar 1.30, maltose and dextrin, 1.70, plus barley 2.25 which is partly dextrinized. This gives a total carbohydrate percentage of 7.91. One liter has a caloric value of 415.

One hundred and seventy babies were cared for; ninety babies received breast milk for the first two weeks of life and then received this mixture. Forty-five received this mixture from birth; eighteen were between 2 and 3 months of age, and seventeen, owing to nutritional disturbance, were on Eiweiss-milch; they received this mixture after completion of the Eiweissmilch cure. During this period there was a remarkable absence of babies with nutritional disturbances; the stools were uniformly of good color and consistency. No infant on this mixture in this series developed the symptom complex described by Finkelstein under the [illegible] [illegible] [illegible] [illegible] cation, nor did symptoms arise which could be interpreted as Mehlnährschaden (starch injury) in the [illegible] of Czerny and Keller. Twelve babies [illegible] they were transferred to [illegible] All the [illegible] throve [illegible] tion. Eight babies died, a mortality of [illegible] causes of death were as follows two sudden deaths, nutrition good, autopsy showed enlarged thymus, one, premature birth, one, congenital syphilis, seven, acute bronchopneumonia, nutrition good, one phlegmon of the scalp, and six, decomposition (Finkelstein) Brady concludes that mixtures of milk, water and lactose with fat, protein and carbohydrate in the percentage corresponding to the widely accepted principles of infant feeding do not give satisfactory results in an infant asylum The asylum infant, even in the early weeks, is greatly assisted in making gains and weathering the unfavorable surroundings by a liberal use of barley, maltose, dextrin and cane sugar in the diet The exhibition of polycarbohydrates in the diet is an excellent therapeutic agent for the infant in private practice who refuses to gain on the usual milk mixtures or has already run down on the same For this diet to be successful the protein must be liberal in amount and special attention must be paid to the fat, which should only be raised with the increase of the weight of the baby The fear of rickets need not be considered, the first requirement is that the infant be kept alive

Buffalo Medical Journal

July LXVII No 12 pp 663 728

5 Acute Pyelitis in Infancy E R Hatch Buffalo
6 Facts Concerning Physical Condition of Women During College Life E E Parker, Ithaca N Y
7 Suppurative Labyrinthitis. C C Cott Buffalo
8 Three Years with the Army of the Potomac A Personal Military History W W Potter Buffalo

American Journal of Medical Sciences, Philadelphia

August CXLIV No 2 pp 157 312

9 *Clinical Study of a Thousand Cases of Ulcer of Stomach and Duodenum J Friedenwald, Baltimore
10 *Diarrhea of Gastric Origin Diagnosis and Treatment D VanderHoof Richmond Va
11 Multiple Subcutaneous Hemangiomas Together with Multiple Lipomas in Enormous Numbers in Otherwise Healthy Muscular Subject. J T Bowen Boston
12 Malignant Disease of Lung with Special Reference to Sarcoma Report of Three Cases A A Stevens Philadelphia
13 *Paroxysmal Hemoglobinuria R A Cooke New York
14 Case of Delayed Development in Boy Treated with Thymus. C G Kerley and S P Beebe New York.
15 Acute Pancreatitis J M King Los Angeles Cal
16 Effect of Cold Air on Circulation in Healthy and Sick Individuals. T B Barringer New York
17 *Leukocyte and Differential Counts in Ward and Open Air Treatment. T G Orr New York
18 Fatal Pneumothorax Following Exploratory Puncture H Dayton New York
19 Tuberculin Therapy in Surgical Tuberculosis. T W Hastings New York

9 Abstracted in THE JOURNAL, June 22, p 1045

10 **Diarrhea of Gastric Origin**—For purpose of analysis Vanderhoof made a statistical study of 500 patients in whom one or more gastric examinations were made Of these 500 patients, eighty one, or 16 2 per cent, showed the condition of gastric anacidity, twenty had cancer of the stomach, twenty two were classified under the term neurosis, five were evident cases of chronic alcoholic gastritis, while the stomach findings in the remainder were associated with or regarded as reflex disturbances from the following conditions chronic appendicitis, seven cases, cardiovascular disease and lesions of the female pelvic organs, each four cases, cholelithiasis three cases pernicious anemia, migraine, pellagra, pulmonary tuberculosis and eyestrain, each two cases and one case each of hysteria, peritoneal adhesions, benign tumor of stomach myxedema, chronic influenza and aural vertigo One of the cases of chronic appendicitis was associated with definite hypothyroidism and one of the pellagra cases was complicated with intestinal amebiasis One patient, included above, had a ruptured ectopic pregnancy and pelvic hematocele, and this was accompanied by severe attacks of gastric tetany, with pronounced dilatation of the stomach, ending in recovery

Diarrhea was a prominent symptom in thirteen of these eighty one cases, including the two pellagra patients Excluding these two cases and the patients with malignant disease of the stomach there were in the remaining fifty nine cases of gastric anacidity eleven patients with diarrhea, or approximately 18.5 per cent These eleven cases form the basis of this article and most of them occurred in the group of patients in whom no organic cause could be ascertained as being responsible for the anacidity

The essential point in the treatment of patients with the condition of gastric anacidity, Vanderhoof says, is the administration of large amounts of hydrochloric acid The usual dose of 10 or 15 drops of the official dilute hydrochloric acid is inefficient In these cases hydrochloric acid is not to be regarded as a drug Its administration is for the sole purpose of supplying artificially a substance which the normal stomach secretes regularly and in good quantity Not only is this acid indispensable for the activation of pepsinogen into pepsin, but on reaching the duodenum it serves as a hormone, or chemical messenger, to initiate the flow of pancreatic secretions Furthermore, hydrochloric acid may be regarded in a certain sense, as the most effective intestinal antiseptic The only obstacle presented in the use of this acid is the difficulty of giving it to patients in sufficient amounts The mucous membranes of the throat will tolerate only weak solutions, hence the necessity of much fluid as a diluent Vanderhoof, however, prescribes 30 drops of official dilute hydrochloric acid in a full glass of water one half hour after meals, to be repeated in one half hour—a total of 180 drops per day

To stimulate the glands of the stomach to resume their function the most efficient means is the administration of strong meat broths as the first course of the meal, preceded by full doses of tincture of nux vomica This drug should be pushed to its physiologic limits In addition to the drinking of broths, consomme, bouillon, beef tea, etc, these patients are encouraged to have their foods well salted, in order that the chlorin supply of the body be ample for the production of hydrochloric acid If any restriction of the dietary is indicated, undoubtedly the proteins should be the class of foodstuffs to limit in amount Buttermilk is a specially valuable article of diet in cases of gastric anacidity, and most patients can be induced to consume three pints a day If the general nutrition is much impaired, associated, as is usually the case, with visceroptosis and possibly motor insufficiency of the stomach, the patient will be much benefited by assuming the recumbent position for an hour after each meal, or may be instructed to lie on the right side Further treatment may include the wearing of an abdominal supporter, and the employment of the usual measures to combat anemia, nervous states and other conditions which may be not only the result, but as well the contributing cause of a gastric anacidity

13 **Paroxysmal Hemoglobinuria**—The following observations by Cooke are based on experiments with the blood of a typical case of paroxysmal hemoglobinuria The serum contains a complex hemolysin capable of dissolving the red blood corpuscles of the individual himself or other individuals by means of the cold warm experiment Positive results were obtained in all of the twelve examinations made at different times Auto antibody is absorbed from serum in the absence of complement, and on elevation of temperature is more or less completely but slowly dissociated Complement is absorbed from active serum on exposure to corpuscle in the cold It will join with antibody after the latter has united with corpuscle, but this union takes place solely under the influence of cold Corpuscles sensitized with inactive serum show but slight hemolysis on the addition of complement as a result of complementoid inhibition As a result of clinical observation, the Wassermann reaction, the luetin test, and the serologic studies in metasyphilitic disease, it seems safe to say that syphilis is the most important, possibly the only, etiologic factor in paroxysmal hemoglobinuria, but there are as yet no observations on the presence or absence of hemolysin after the disappearance of the Wassermann reaction as a result of syphilitic treatment

17 **Leukocytes in Ward and Open Air Treatment.**—Orr observed that there is no constant change in the total leukocyte or polymorphonuclear counts in afebrile patients when treated in the open air with only the face exposed as compared with counts in the ward In the majority of patients with fever and leukocytosis there is a small percentage decrease in the total leukocytes when treated in the open air with only the face exposed as compared with the count when treated in the ward Under like conditions there is no constant change in the polymorphonuclear counts.

Kentucky Medical Journal, Bowling Green

July 15, X No 14 pp 601 634

20 Psychogenesis of Hysteria. C Pope Louisville
21 Pruritis from Medical and Surgical Standpoint M L Ravitch Louisville
22 Scarlet Fever W Sanders Louisville

August 1 X No 15 pp 635 688

23 Antitoxin in Diphtheria and Membranous Croup I H Browne Winchester
24 What Must We Do to Be Saved from Temporal Death? D H Howerton Columbia
25 What Have Health Boards Done for the Country? U L Taylor Columbia.
26 Sanitation and Preventive Medicine L F Hammonds Dunnville
27 Pellagra M Pennington Bertha
28 Dysentery C L Heath Lindsay
29 New Therapy of Syphilis. D H McKinley Winchester
30 Placenta Praevia Diagnosis and Treatment T W Stone Bowling Green
31 Early Diagnosis and Treatment of Arteriosclerosis. M M Moss Bowling Green
32 Ascites Diagnosis and Treatment. F E McCann Gold City
33 Clinical Aspects of Anaphylaxis N C Witt, Franklin
34 Acute Intestinal Obstruction W A Guthrie Franklin
35 Dietetics in Typhoid D G Simmons Adairville
36 Important Etiologic Factors in Gastro Intestinal Diseases of Children C L Venable Franklin
37 Bronchopneumonia Capillary Bronchitis Catarrhal Pneumonia R. T Hocker Arlington
38 Jaundice. A. P Dowden Eminence

Surgery, Gynecology and Obstetrics, Chicago

August, XV No 2 pp 135 242

39 *Primary and End Results of Fifty One Radical Abdominal Operations for Cancer of Uterus. R. Peterson Ann Arbor Mich
40 *Radical Abdominal Operation for Carcinoma of Cervix Uteri with Report of Twenty Eight Cases. H C Taylor New York.
41 *Prognosis in Radical Abdominal Operation for Uterine Cancer F J Taussig St Louis.
42 *Gymnastics and Other Mechanical Means in Treatment of Visceral Prolapse and Its Complications. F H Martin Chicago
43 Chronic Cystitis of Trigone and Vesical Neck. E Garceau Boston
44* Indications for and Type of Operation to Select in Toxemia of Pregnancy J O Polak Brooklyn
45* Treatment of Acute and Fulminant Toxemia. E P Davis Philadelphia
46 *Treatment of Eclampsia. F S Newell, Boston
47 Prolapse of Uterus J M. Baldy Philadelphia
48 *Relation of Thyroidism to Toxemia of Pregnancy G G Ward New York.
49 *Topography of Hypophysis Cerebri W S Gibson Chicago
50 Usefulness of Extension Apparatus in Treatment of Fractures of Lower Extremity W Hessert Chicago
51 Surgical Needles, Pleural Aspirator Rib Cutting Forceps. J G R Manwaring Flint Mich
52 Method of Securing Catgut on a Needle F H Jett, Terre Haute Ind
53 Pubiotomy S D Jacobson New York.
54 Electric Desiccation as Adjunct to Surgery with Special Reference to *Treatment of Cancer W L Clark Philadelphia*
55 Selection of an Anesthetic I C. Herb Chicago
56 Unusual Indications for Cesarean Operation J T Schell Philadelphia

39 Abstracted in THE JOURNAL, July 20 p 220

40 **Operation for Carcinoma of Cervix Uteri.**—The conclusions which Taylor has drawn as a result of a study of his own cases and replies to a circular letter which he sent out are as follows 1 The primary mortality of the radical abdominal operation is not such that it should deter us from doing the operation 2 The percentage of operability of the cases which come under observation of an operator, by the use of this operation, will be greatly increased over that of those where the simple hysterectomy is done as was formerly the case 3 The end results will never compare favorably with the end results reported from abroad, until we are able to get our cases at an earlier stage of the disease, and that our justification for doing such a radical operation is in its moderate mortality and in the relief of symptoms in a disease otherwise hopeless 4 Our most promising field of endeavor on the subject of carcinoma of the uterus should be (a) more reliable and more complete statistics including the percentage of operability the community operability primary mortality and also end results, (b) a well regulated organized plan of campaign in order to get our cases earlier than we do at the present time This Taylor believes to be along the three well known paths, the further and more exact education of the medical profession a more detailed education of the public at large, and the routine examination of all women after a certain age It is his belief that until we do these things, our statistics will never compare with those that are reported from abroad where they have been working along these lines for some years past

41 **Operation for Uterine Cancer**—The fact that our percentage of absolute cures is small as compared with German or Austrian statistics, Taussig says is not due to greater operative mortality or to narrowing the limits of operability It is not due to lack of boldness or skill on the part of the surgeons but to the character of the material that comes to him for operation The women are negligent of early symptoms and the average practitioner is careless of diagnosis or inclined to try palliative measures until the disease is too far advanced The percentage of operability is less than one half that of the average German clinic Only by improving the medical training of the men who go into general practice by the extermination of quacks and most of all by the persistent systematic education of the laity can we ever hope for better results

42 Abstracted in THE JOURNAL July 6 p 58

44 **Toxemia of Pregnancy**—Toxic vomiting which resists rest, lavage dextrose enemata enteroclysis and presents a high ammonia ratio or persistent acetonuria and a maternal pulse of 100 or more should in Polak's opinion have the pregnancy interrupted. Before the placental formation the curet is the method of choice, after this period anterior hysterotomy offers decided advantages The pre eclamptic state characterized by its high blood pressure diminished urinary output, persistent albuminuria etc, not yielding to dietetic, eliminative and medicinal measures justifies evacuation and surgical methods in skilled hands do less injury have a lower mortality and have less morbidity than the less radical procedures When the convulsions and coma have occurred the termination of pregnancy improves the chance of the patient's recovery and the method of delivery depends on the condition of the cervix, which determines whether it be by incision, bag or Nature, supplemented by version or forceps Anterior hysterotomy should always be the choice over manual dilatation where no effacement of cervix has taken place

45 46 *and* 48 Abstracted *in* THE JOURNAL July 13 p 140

49 **Topography of Hypophysis Cerebri**—The following averages were obtained by Gibson from measurements on 107 skulls

Nasion to sella turcica	62 mm
Nasion to posterior surface of dorsum sella	75 mm
Anterior nasal spine to sella turcica	78 mm
Anterior nasal spine to clivus	88 *mm*

With a very few exceptions variations from the averages given above do not exceed 1 cm Hence the measurements are sufficiently constant to be of practical value The important variations in the region of the sella turcica with frequency of occurrence are as follows

Complete or practical absence of sphenoidal sinuses	3 per cent
Small sphenoidal sinuses	9 per cent
Thick anterior wall of sella turcica	9 per cent
No projection of sinuses beneath sella turcica	22 per cent

In any one of the above variations the fact that the sella turcica does not bulge into the sphenoidal sinuses would make it extremely difficult for the surgeon to determine its exact position

Thin posterior wall of sphenoidal sinuses, 35 per cent With only the merest shell of bone protecting the pons its liability to injury is easily seen Transverse sphenoidal septum 2 per cent Should this septum be mistaken for the floor or roof of the sphenoidal sinuses the true position of the sella would be obscured Downward curvature of cribriform plate 4 per cent Shallow sella turcica 5 per cent The presence of either of the above conditions might cause the surgeon to pass completely beneath the sella Downward direction of superior surface of [illegible] and anterior superior margin of sella turcica in which the chiasm would be [illegible] 10 per cent [illegible] do not present any [illegible] favorable [illegible]

Illinois Medical Journal, Springfield

August XXII No 2, pp 139 276

Public Care of Insane and Mentally Defective F P Norbury, Springfield
*Clinical Significance of Reflexes T B Throckmorton Cherokee Ia
Well Cobra Venom Reaction in Paresis and Other Psychoses C R Bell Elgin
Amentia M E Pogue Lake Geneva Wis
Binet Simon Intelligence Tests in Their Application to Defectives C H Town Lincoln
Prevention of Insanity W A Evans Chicago
Freud s Psychotherapy J Grinker Chicago
Musculospiral Paralysis Spindle Celled Sarcoma of Arm E Friend Chicago
*Orthostatic Albuminuria E J Brown Decatur
Steel Splint in Treatment of Fractures O L Pelton Elgin
Profuse Hemorrhages from Urinary Tract H L Kretschmer Chicago
Problems of Pelvic Surgery G deTarnowsky Chicago
Dangers Connected with Pregnancy M J Kearsley Chicago
Undergraduate Life and Early Medical Work of Alexander Hugh Ferguson A McDermid Chicago

Clinical Significance of Reflexes —Aside from extensor phenomena Throckmorton says, the absence or presence single reflex phenomenon does not necessarily warrant naking of a positive diagnosis of a nervous disorder, but er in arriving at a definite conclusion, the entire clinical re as manifested by the association of symptoms, physical clinical findings, supplemented by a complete history ld always be the determining factors For instance, the nosis of tabes dorsalis should never be made on the nce of the knee jerk, unless it is also accompanied by r cardinal symptoms as visceral crises, lightning pains, na, Argyll Robertson pupil vesical disturbances, etc ed, it has been contended that it is unwise to make a posi diagnosis of either tabes or paresis unless the pupillary ngs are positive of these disorders Unfortunately from a nostic standpoint, there are no constant changes in the xes accompanying mental disorders General paralysis of insane perhaps affords the most constant changes in reflex vity of any of the forms of insanity, but it must be embered that in this disorder we are dealing with an nic affection since pathologic changes in nervous tissue be demonstrated The tendon reflexes are variable, they be normal plus or minus The pupillary findings are constant and characteristic Early there may be dis ance of the consensual reflex, inequality and irregularity utline of the irides is often present and, as previously tioned, the change from time to time in the position of irregularity denotes the oncoming loss of light reaction ever the loss to light reaction is also found in tabes and ld syphilis of the central nervous system, which goes to the necessity of having other clinical evidence besides ngle reflex no matter how pronounced that reflex may be, re making a positive diagnosis of a nervous disorder

s a general statement Throckmorton thinks it may be that the deep reflexes are usually diminished in those tal disorders which are depressive in character, and eased in excitive and exalted mental states Finally, as eans of making a differential diagnosis between organic the so called functional disorders, the presence of an ensor toe reflex, of which type the Babinski phenomenon is sical is conclusive evidence in that such a finding always otes an organic disease of the nervous system Persistent le clonus in association with a plus knee jerk is also a l indication of an organic motor lesion

5 Abstracted in THE JOURNAL, June 5, p 1777

rnal of Oklahoma State Medical Associationn, Muskogee

August I No I pp 81 12,

Gastric Indigestion F J Wilkemyer Muskogee
Intestinal Indigestion F W Ewing Terral
Enteroptosis as Factor in Indigestion H I Wilson Wynnewood
Digestive Disturbances of Gastric and Duodenal Ulcer A L Blesh Oklahoma City
Diseases of Gall Bladder and Pancreas As Factors in Indigestion L Long McAlester
Digestion as Affected by Chronic Appendicitis or Why Does Chronic Appendicitis Affect Digestion? M Smith Oklahoma City
Pellagra C R Hume Anadarko
Eclectic Lightning Bug Convention J M Alford Oklahoma City
Advantages of Combined Local and General Anesthesia in Abdominal Operations L F Watson Oklahoma City

Archives of Pediatrics, New York

July, XXXII No 7, pp 481 560

80 Unusual Cases of Narrowing Esophagus in Childhood J L Morse Boston
81 Treatment of Scarlet Fever L Fischer New York
82 *Administration of Bichlorid of Mercury to Mother for Its Effect on Digestive Function of Nursling S V Haas New York
83 Common Errors in Diet After First Year R H Dennett New York
84 Administration of Anesthetics in Infants and Children T W Kilmer New York
85 Urethral Calculi J Speese Philadelphia
86 Vitiligo with Report of Case Appearing Two Weeks After Attack of Scarlet Fever H K Hill Philadelphia

82 **Administration of Bichlorid of Mercury** —Eight years ago Haas began to test the value of the administration of bichlorid of mercury in the treatment of congenital syphilis among the cases occurring in the pediatric service of Holt at the Vanderbilt Clinic It was found that the effect on the specific process, though positive, was slight, whereas, gastro intestinal and nutritional disturbances when present, cleared up in a most remarkable manner By way of illustration An infant 6 weeks of age, anemic, with marked desquamation, rugæ, snuffles, large liver and spleen, birth weight 6½ pounds, present weight 7 pounds, has had numerous green mucous stools since birth, although breast fed The mother was given bichlorid of mercury, 1/32 of a grain three times a day, when seen forty eight hours later, the stools were yellow, no mucus, the syphilitic process unchanged After a week, however, this too showed slight improvement A gain in weight of a half pound was registered No other changes had been made in regimen of mother or infant

After noting the regularity with which this occurred in patients suffering from congenital syphilis, it was decided to test its value in gastro intestinal disturbances among non specific nurslings The result was most encouraging Between 35 and 40 per cent of the patients were benefited, no harm resulted even in those patients who had not improved The drug was administered in more than 200 cases The dose, excepting in the earlier cases, was tablet triturate of bichlorid of mercury, 1/32 of a grain, administered to the mother three times a day after meals The cases were not selected Any nursling not prospering was considered a good subject The effect on the mother of a syphilitic child was positive, rapid and striking, the general tone and color improving visibly On the non specific mother the effect was sometimes that of a general tonic, but in most cases no effect was observed. In a few cases the mother lost weight The effect on the quantity of milk supplied according to the statements made by the mothers, varied within wide limits Usually there was an increased secretion, in some cases no change, and in a few cases a distinct diminution in the supply The quality of the milk would appear to have been improved In a number of instances, in which under poor advice, nursing had been discontinued, and the milk had practically disappeared, it was possible to reestablish the function in one case, after twelve weeks It seemed that the mercury was of some assistance in these cases although this is not at all certain since we know that the function can be reestablished by simply permitting nursing to be resumed

Maryland Medical Journal, Baltimore

August II No 8 pp 183 208

87 Triumphs of Preventive Medicine T L Rhoads U S A
88 Typhoid and Way to Prevent It C W G Rohrer Baltimore

Texas State Journal of Medicine, Fort Worth

August VIII No 4 pp 107 132

89 Hygiene and Preventive Medicine in the South I Dyer New Orleans La
90 Newer Methods of Diagnosis of Pathologic Conditions of Liver F C Chase Fort Worth
91 *Improved Operation for Prolapsus Uteri with Report and Results C S Venable San Antonio
92 Narcolepsy S C Parsons San Angelo
93 Comparative Study of Practice of Medicine and Surgery in Mexico and in United States L H Hoffman Hobart Okla

91 **Operation for Prolapsus Uteri** —Venable's operation consists in a looping of the broad ligaments in their perpendicular axis behind the body of the uterus, where they are made fast The result of this procedure is to lift the uterus and adnexa from the deep pelvis to tighten the sacro uterine ligaments,

to shorten the round ligaments thereby tilting the fundus of the uterus forward, and last, but not by any means least, to reestablish intra abdominal pressure in the normal plane

Journal-Lancet, Minneapolis

August 1 XXXII, No 15 pp 395 422

94 Sporotrichosis Report of Case G S Adams Yankton S D
95 General Practitioner Present Status and Future Prospect C Johnson Willmar Minn
96 Abortive Treatment of Acute Gonorrheal Epididymitis O Owre Minneapolis
97 Health Supervision of Schools J G Parsons Sioux Falls S D
98 Rôle Played by Sexual Organs of Women in Production of Backache J L Rothrock St Paul
99 Foreign Body Removed from Bifurcation of Trachea by Lower Bronchoscopy E. W Benham Minkato Minn

Journal of Biological Chemistry, Baltimore

August XII, No 2, pp 163 312

100 Non Enzymatic Character of Oöcytin (Oöcytase) T B Robertson Los Angeles.
101 Hydantoins Synthesis of Thiotyrosin T B Johnson and C A Brautlecht New Haven Conn
102 Modification of Ritter's Method for Quantitative Estimation of Cholesterol H J Corper Chicago
103 Hydantoins New Method for Synthesis of Phenylalanin T B Johnson and W B O Brien New Haven Conn
104 Studies in Bacterial Metabolism A I Kendall C J Farmer E. P Bagg and A A. Day Boston
105 *Idem A I Kendall and C J Farmer Boston*
106 Influence of Glutaric Acid on Phlorhizin Glycosuria A I Ringer Philadelphia
107 Autolysis of Mold Cultures A W Dox and L Maynard
108 Comparison of Paranuclein Split from Casein with Synthetic Paranuclein Based on Immunity Reactions F P Gay and T B Robertson Los Angeles
109 Phosphotungstic Phosphomolybdic Compounds as Color Reagents O Folin and W Denis Boston
110 Tyrosin in Proteins as Determined by New Colorimetric Method O Folin and W Denis Boston
111 **Protein Metabolism from Standpoint of Blood and Tissue Analysis* Absorption from Large Intestine O Folin and W Denis Boston
112 *Idem Absorption from Stomach O Folin and W Denis Boston
113 Action of Leukocytes on Glucose P A Levene and G M Meyer New York
114 Quantitative Determination of Aliphatic Amino Groups. D D Van Slyke New York
115 Composition and Properties of Glycocoll Picrate and Separation of Glycocoll from Alanin P A Levene and D D Van Slyke New York
116 *Conditions for Complete Hydrolysis of Proteins D D Van Slyke New York
117 *Gasometric Determination of Free and Conjugated Amino Acids in Urine* P A Levene and D D Van Slyke New York.

111 **Absorption from Large Intestine**—The author's experiments show that while the absorption *from the large* intestine is not nearly so rapid as from the small intestine, it is rapid enough to cause an appreciable accumulation of the absorbed products in the blood

112 **Absorption from Stomach.**—The results in these experiments prove that nitrogenous digestion products are absorbed from the stomach

116 **Complete Hydrolysis of Proteins.**—Van Slyke found that the percentage of amino nitrogen reaches a definite maximum when acid hydrolysis of a protein is complete, and this maximum is the same whether the hydrolysis occurs at 100 or at 150 C Approximately the same results are obtained by heating at 100 C with 20 per cent hydrochloric acid for forty eight hours as by heating in an autoclave with 3n acid for one and one half hours At 100 C the amino nitrogen reached its maximum within ten hours in no case, but within twenty four hours in every case, except that of gluten, which showed a small but definite increase (2 4 per cent) during the second twenty four hour period The ammonia, does not reach an absolutely definite maximum, but increases the longer hydrolysis is continued At 150 C, prolonging the hydrolysis beyond one and one half hours, caused, in the cases of three of the six proteins, an increase of 2 5 to 4 5 per cent in the ammonia nitrogen At 160 C the increase of ammonia is still more marked and occurs at the expense of the amino nitrogen There is much less tendency towards deaminization at 100 C the second twenty four hour *period* caused an increase of over 0 8 per cent in the ammonia only in the case of egg albumin (1 7 per cent) That any of the other natural amino acids are deaminized to an appreciable extent, unless heated under pressure appears doubtful to Van Slyke That the ammonia or amide nitrogen,' arises chiefly from the acid amid groups of the asparagin and glutamin in the protein molecule, he says, is consistent with all present results

Annals of Ophthalmology, St. Louis

July XXI No 3 pp 44 667

118 Simple Senile Cataract Extraction with Incision of Root of Iris A Elschnig Prague
119 *Another Case of Chloroma* A J Bedell Albany
120 Early Symptoms and Ocular Findings in Cerebral Tumor O Wilkinson Washington
121 Secondary Glaucoma in Interstitial Keratitis with Report of Case E A Shumway Philadelphia
122 Sympathetic Ophthalmia F Deutschmann Hamburg
123 Congenital Absence of Both Lower Puncta Lifelong (Double) Dacryocystitis Apparent Cure from Dacryocystorhinostomy W H Luedde St Louis
124 Submucous Dacryocystorhinostomy for Persistent Dacryocystitis W M C Bryan St Louis

Journal of Nervous and Mental Disease, Lancaster, Pa

August XXXIX No 8 pp [illegible]

125 *Pseudo Bulbar Palsy Clinically and Pathologically Considered with Clinical Report of Five Cases F Tilney and J F Morrison New York
126 Alzheimer's Disease (Senium Praecox) Report of a Case and Review of Published Cases S C Fuller Westborough Mass

125 **Pseudobulbar Palsy**—This paper is based on an analysis of 178 cases In 88 per cent of cases the onset is sudden in 67 per cent consciousness is lost during the onset The cranial innervations are involved as one of the initial symptoms in 80 per cent of cases Hemiplegia occurs among the first disturbances in 62 per cent A defect in speech is the most common of the initial bulbar symptoms This occurs in 68 per cent of cases Twenty four per cent of cases present no bulbar involvement among the first symptoms The patients who are stricken suddenly usually have subsequent attacks of a similar character Seventy three per cent of patients have more than one attack The length of the interval between attacks varies within wide limits from a few days to twelve years The average length of interval between the first and second attacks is eighteen months between the second and third attacks twelve months between the third and fourth, thirteen months, between the fourth and fifth, six months

Another characteristic feature in the course of the disease is the tendency of the paralysis to change its distribution at each successive attack In 8 per cent of the cases the paralysis did not shift at all Of the cases having three attacks only 9 per cent showed no shifting of the paralysis In the remaining 91 per cent the combinations were so varied as to make tabulation impracticable The paralysis of the cases having but one attack is bulbar alone in 25 per cent bulbar and hemiplegic in 68 per cent, bulbar and paraplegic in 7 per cent

The most prominent of the bulbar symptoms is the speech defect It occurs in every case Paralysis of the facial musculature is a conspicuous bulbar symptom It is usually a bilateral prosopoplegia with one side slightly more involved than the other It occurs in 81 per cent of cases Paralysis of the palatine and pharyngeal muscles occurs in 97 per cent of cases In 2 per cent no statement was made in this particular and in 1 per cent the muscles were not involved Dysphagia is present in 69 per cent of cases In some instances patients are able to swallow only semi solid foods Deglutition is always slow and often interrupted by attacks of coughing or regurgitation of fluid through the nose This disturbance is more marked in the severer cases and in all cases immediately after the acute attack The laryngeal muscles are less frequently involved Paralysis in this group occurs in 10 per cent of cases The muscles of mastication are affected in 17 per cent of cases As a rule the disturbance is a voluntary paralysis there is no atrophy in the muscles and the jaw jerk is always active Both sides are usually involved with the loss of power somewhat more marked on one side than the other Paralysis of the muscles of the eyeball occurs in 16 per cent of cases and is generally unilateral

The emotional tone of the individual undergoes a marked change in [illegible] per cent of [illegible] Crying [illegible] occur in a large number of [illegible] the laugh [illegible] amputated limb to fill the same sized gap, which had been left when the pointed fragments had been sawn off transversely The hollow of the graft was filled by a portion of the fibula from the same amputated limb, and the projecting ends were inserted into the medullary cavities of the upper and lower fragments embedded in iodoform paste, which was also squeezed into the hollow of the graft As the ends of all the fragments were now in line and well coapted, no stitches were necessary between them The wound in the soft parts was closed without drainage and healed without reaction Later, the small sinus opened again and continued to yield a little turbid serum In this condition he remained for some months and then began to be desperately homesick He began to plead for an amputation And, as his wretched mental state seemed to demand it, Barker very reluctantly amputated the limb But from the skiagrams taken just before, and from an examination of the seat of operation after amputation, it seems more than probable that with patience the bones would have ultimately been united by good bone The graft was dead and eroded by the tissues around it But there is also a large quantity of new bone around it, left by its removal, like a sleeve, which fuses above and below with new bone thrown out by the two ends of the patient's tibia

The second case was one of ununited fractured tibia Barker grafted the second metatarsal bone into the ununited ends as follows A long vertical incision was made over the front of the tibia having the line of fracture in its middle The ends were found in good position, and the wire of the previous operation was removed. The periosteum of both ends was divided in the direction of the skin incision and turned aside Then, with a narrow gouge, he cut a groove in the end of each fragment in one line, deep enough to open the medullary cavity, this was packed with dry gauze for the moment Barker then exarticulated the second metatarsal bone with its periosteum from the patient's own foot on the same side, trimmed off the articular cartilage at both ends with bone forceps and placed it in a bowl of warm normal saline solution The gauze packing was then removed from the slot cut in the ununited ends of the fractured bone, and the metatarsal bone was laid into it, half in the upper fragment and half in the lower, crossing, of course, the line of fracture which it bridged The periosteum was drawn as far as possible over this central plug and stitched, and the soft parts closed over all without drainage Primary union took place without a flaw From time to time radiograms have been taken, and at first showed of course, but little change The metatarsal bone could be seen distinctly in the center of the fractured tibia bridging across the interval between the fragments Then by degrees bone was seen growing from the edges

Clinical Journal, London

July 17 XL No 15 pp 225-240

21 Cardiac Failure W P Herringham
22 Treatment of Some Aural Affections H J Davis

July 24 XL No 16 pp 241-256

23 Operative Treatment of Fractures of Long Bones W M Eccles.
24 Diagnosis of Phthisis and Other Tuberculous Diseases H W Gardner
25 Clinical Demonstration of Disease in Children J H Thursfield

July 31 XL No 17 pp 257-272

26 Hysteria and Its Relation to Mental Diseases W H B Stoddart
27 Late Results of Suprapubic Prostatectomy for Simple Enlargement of Prostate J W T Walker
28 Meningitis L M Gossage

Edinburgh Medical Journal

August, IX, No 2 pp 97-192

29 Some Memories of Old Harveians with Notes on Their Orations. C W MacGillivray
30 *Complete Absence of Vagina Regurgitation of Menstrual Blood Through Fallopian Tube into Peritoneal Cavity Unusual Case W Fordyce
31 Care of Teeth in Relation to Health of Children at School Ages Provision of Special School Dental Clinics. L S Sheenan
32 *Diagnosis of Disease of Stomach by Roentgen Rays. G A Pirie

30 **Complete Absence of Vagina.**—Fordyce cites the case of a young lady who previously had been quite strong and whose menstruation had always been normal One day toward the end of a period, she was seized with acute abdominal pain with great abdominal tenderness suggesting appendicitis, for which she underwent an immediate operation The appendix was found to be normal, but there was a considerable quantity of blood in the lower abdomen, which was found to be oozing from the right fallopian tube The diagnosis of a patent fallopian tube was made The two succeeding periods were attended by pretty severe pain, but since then there has been no more than the ordinary discomfort The fallopian tube was not removed Fordyce suggests the possibility that some of the very severe cases of dysmenorrhea one occasionally comes across, where on examination everything seems to be normal, are due to a similar clause, or, if not to regurgitation of blood through the tube, then to an abnormal amount of blood getting into the peritoneum from the rupture of an unusually vascular Graafian follicle He has repeatedly in abdominal work been surprised to find a considerable amount of blood in the pouch of Douglas In these cases it has been noted that menstruation had just terminated. Blood effused into the peritoneal cavity seems to undergo a very rapid and complete absorption, leaving no trace of adhesions

32 **Stomach Disease**—According to Pirie a stomach that allows food to pass at once to its lowest point and gather there is atonic Its greater curvature requires elevation by mechanical or surgical means A stomach that is not empty in six hours has some obstruction at the pylorus Gastro-enterostomy is indicated But if that stomach is also atonic, gastro-enterostomy alone will do no good. If a functional hour-glass appearance is observed, the stomach has a small ulcer somewhere If a true hour-glass appearance is seen, *gastro-enterostomy must be done above the level of the constriction* If the gastric juice contains no acid (as shown by the bismuth cachet remaining undissolved), and there is the slightest irregularity of the stomach outline, carcinoma is present Lastly, if indigestion resists medical and dietetic treatment for more than a month, a Roentgen-ray examination after a bismuth meal should be made It is painless, not unpleasant, and capable of supplying important information about the stomach, its shape, position and functional activity

Journal of Laryngology, Rhinology and Otology, London

August XXVII, No 8 pp 409-464

33 *Favorable Influence of Rhinologic or Pharyngorhinologic Operations on Exophthalmos and Hypertrophy of the Thyroid Contribution to Treatment of Exophthalmic Goiter J Sendziak
34 *Teaching of Otorhinolaryngology in France G Gelle*

33 **Treatment of Exophthalmic Goiter**—Sendziak has personally observed six cases of undoubtedly favorable influence of the nasal or nasopharyngeal operations on the symptoms of exophthalmic goiter He says that the favorable influence *of the nasal therapeutic methods and operations in the course* of this disease is shown in three principal ways (1) The most striking is the influence of these operations on the ocular symptoms, especially on the exophthalmos with von Graefe's and Stellwag's symptoms In these cases there is a striking improvement (diminution of the exophthalmos to 4 mm Hoffmann), or even, as in three of his cases, a complete return to the normal In two cases there was an immediate and striking difference in the appearance of the eye after the excision of adenoid vegetations or tonsillotomy (in only one case this difference took place on third day) (2) The favorable influence of nasal respiratory nasopharyngeal operation on the hypertrophy of thyroid (goiter) There has also been noted complete recovery from the goiter after nasal operations (3) Finally, the favorable effect of these operations on the other symptoms of the disease (tachycardia, tremor, etc) From the cases which he has collected from the literature, as well as from his own personal experience Sendziak maintains that in every case of exophthalmic goiter (with the characteristic "triad" of the symptoms, i e, exophthalmos, goiter and tachycardia), or in the so called *forme fruste*, i e, without the ocular symptoms finally in simple vascular swelling (hypertrophy) of the thyroid (goiter), we must minutely examine the upper respiratory tract, especially the

nose and nasopharynx, and in the event of any pathologic changes being discovered, immediately submit them to the local treatment, namely operation

Journal of Tropical Medicine and Hygiene, London

July 15 XV No 14 pp 209 224

35 *Etiology of Vaccinia and Cultivation of Microbe of Variola W J Simpson

35 **Etiology of Vaccinia.**—From a buffalo suffering from a fatal attack of small pox Simpson isolated a diplobacillus, from subsequent subcultures of this organism two calves were inoculated From one calf thus inoculated, lymph was taken from a secondary vesicle, inserted into a third calf, and from the vesicle in the third calf children were successfully vaccinated and rendered immune to ordinary vaccine lymph A similar success attended the inoculation of the second calf This is a noteworthy and most important observation, being none other than a successful vaccination of children from the products of a culture of the contents of a small pox like disease in cattle This experiment was further elaborated by retransferring the lymph from children to calves, then from calves to children again, as well as from children to children Three months later a second series of experiments was carried out With cultures from the lung, spleen and liver, three calves were inoculated with one of the cultures from each, respectively The calf inoculated by cultures made from the lung died, the second (cultures from spleen) calf lived to develop secondary vesicles, lymph from which was transferred to another calf and from the vesicles on this calf lymph was taken on the seventh day and inserted into children, the result was a successful vaccination of the children who resisted attempts to vaccinate them by ordinary vaccine lymph Many other experiments were made by Simpson, all showing the capability of successful vaccination by cultures made from cattle suffering from cattle diseases, passing under several names, such as rinderpest, gotee (small pox), etc Simpson has also shown that it is possible to produce vaccine by the passage of human small pox virus through the cow, and that children could be successfully vaccinated from this source

Medical Press and Circular, London

July 17 XCIV No 3819 pp 49 72

36 *Treatment of Dyspepsia W H Willcox
37 Arthritis Deformans and Purin Free Diet J S K Smith
38 Clinical Significance of Acidosis in Pregnancy W C Swayne
39 Submucous Resection of Nasal Septum Analysis of 130 Cases. D McKenzie

July 24 XCIV No 3820, pp 73 98

40 Tracheotomy M Wicart
41 Appendicitis J J Clarke
42 Case of Heroin Habit. J O Symes.
43 Psychogenesis and Internal Secretions Experimental Data and Pathogenesis T A Williams.
44 Acute Shedding of Hair in Certain Circulatory Disorders D Walsh

July 31 XCIV, No 3821 pp 99 124

45 Treatment of Decubitus. A Zweig
46 Medical Aspects of Eugenics A F Tredgold

36 **Treatment of Dyspepsia**—In treating patients with chronic gastritis, Willcox says careful attention should be paid to the condition of the mouth and teeth If the symptoms are severe, rest in bed for about a fortnight is advisable and during this period gastric lavage can be carried out daily Citrated milk or peptonized milk may be given, 5 oz., every two hours for the first three days Then junket, lightly boiled or poached eggs, clear soups, or jellies may be given in addition When the patient gets up, his diet should be carefully regulated and only plain easily digestible food allowed at first such as fish boiled chicken, tripe sweetbreads, toast, rusks thin milk pudding etc Alcohol should be avoided, and smoking must be prohibited As regards medical treatment, a mixture such as the following may be given

℞	gm or c c			
Liquoris strychninæ		2		3 ♏
Acidi hydrochlorici dil		92		14 ♏
Tincturæ aurantii	2			1½ ʒ
Glyceriti pepsini	4		or	1 ʒ
Spiritus chloroformi		66		10 ♏
Aquam ad	30			1 ℥

Sig t d s, p c

In hyperacidity, rest, either in bed or on a couch is advisable The diet should be easily digestible, and citrated milk, or milk containing 1 dr of bicarbonate of soda to the pint, should be freely given A mixture

℞	gm or c c			
Bismuthi carbonatis		66		10 gr
Magnesii carbonatis		66	or	10 gr
Sodii bicarbonatis	2	6		40 gr
Aquæ chloroformi ad	30			1 ℥

should be given one hour after meals In some cases the taking of olive oil, a tablespoonful before meals is of value The patient should avoid spiced foods, condiments of all kinds, also soups and meat extracts

Chronic atonic dilatation of the stomach is best treated by rest in bed for a few days the stomach may be thoroughly washed out and emptied at the commencement and then the patient fed with citrated milk to which beaten up eggs are added An ounce of liquid may be given every hour for the first twenty four hours, and the quantity of liquid only gradually increased When the stomach has contracted down light, easily digestible solids may be given but big meals must always be avoided It is well to avoid taking liquids with the meals, these may be taken either an hour before meals or between meals Abdominal massage is of value, and a nerve tonic may be given

℞	gm or c c			
Liquoris strychninæ		26		4 ♏
Tincturæ cardamomi comp	2			1½ ʒ
Acidi hydrochlorici dil		66	or	10 ♏
Aquæ chloroformi ad	30			1 ℥

Sig t d s, p c

Annales de Gynecologie et d'Obstetrique, Paris

June XXXIX No 6 pp 321 384

47 Therapeutic Abortion in Tuberculosis (De l'avortement soi disant thérapeutique chez les femmes tuberculeuses) A Pinard
48 Fixation of Uterus Interfering with Delivery (Dystocie suite d'hystéropexie opération césarienne et hystérectomie) Frubinsholz and G Michel
49 Toxemia or Bacteremia Active Versus Expectant Treatment. R Labusquiere

Presse Medicale, Paris

July 10 XX No 56, pp 585 592

50 *Successful Operative Treatment of Gastric Crises in Tabes L Maire and C Parturier
51 Soap Not Antiseptic (Le pouvoir antiseptique du Savon) M Pilod

50 **Operative Treatment of Gastric Crises in Tabes**—Maire and Parturier report most excellent results from application of Franke's method of operative treatment in two cases of gastric crises The relief from pain was immediate and has been permanent over four months to date They discuss the comparative advantages of the Franke and Foerster operations, stating that the former is much simpler and seems to accomplish the purpose equally well No one need hesitate they say, to propose it to any tabetic whose gastric crises prove rebellious to medical measures (The method was described in THE JOURNAL, Feb 10 1912, p 446)

Revue Medicale de la Suisse Romande, Geneva

May XXXII No 5 pp 337 400

52 Chorio-Epithelioma of Fallopian Tube Eleventh Case on Record (Étude du chorion-épithéliome malin de la trompe) L Jeanneret
53 *Lumbar Puncture (La ponction lombaire) A Cramer
54 *Early Diagnosis of Intestinal Tuberculous Process in Course of Chronic Pulmonary Tuberculosis Jaquerod

53 **Lumbar Puncture**—Cramer discusses whether this measure is really so harmless as is generally accepted He has found thirty eight published cases of death in which a preceding lumbar puncture is incriminated In all but ten cases there had been a tumor in the brain or cerebellum in three others an aneurysm in two others echinococcus di[illegible] hydrocephalus in two others uremia or tuberculous meningitis and in one case epidemic meningitis In his own experience the lumbar puncture was harmless with [illegible] even when the patients had [illegible] cancer [illegible] at necropsy Death did [illegible] til

puncture In two cases in his practice the needle broke in the spinal canal but this did not entail any serious consequences Vertigo and swooning are rarely observed and only in very nervous frightened patients Nausea is more common and headache is comparatively frequent Pitres and Abadie regard headache as inevitable with lumbar puncture, but Cramer did not find it so constant, especially when only a moderate amount of fluid was withdrawn. Sicard advises keeping the patient in bed for forty eight hours, the head scarcely raised, before lumbar puncture, particularly on suspicion of a brain tumor The puncture should be made with the patient lying on his side, the head slightly lowered by raising the foot of the bed This position should be maintained for from twelve to twenty four hours, and then the foot of the bed should be lowered and the patient lie horizontal for another two days. Even with all these precautions, the puncture may prove fatal in case of a brain tumor, so it should not be ventured unless the symptoms actually compel it Cramer reviews the technic, and interpretation of the findings Widal says that the prognosis is inevitably fatal when the fluid contains over 2 per thousand albumin of urea

54 **Intestinal Tuberculosis.**—Jaquerod witnessed the development of intestinal tuberculous processes in the course of chronic pulmonary tuberculosis in twenty cases, twice during the first stage of the lung process and fourteen times during the second stage The first symptoms of the secondary intestinal affection were digestive disturbances From eating with a good appetite, the patients began to be fitful in their appetite and complain of pain in the epigastrium, sometimes they vomited. The persistence of these digestive disturbances suggests serious trouble He is inclined to regard these stomach symptoms as due to reflex action as they subsided entirely in the three cases in which the tuberculous intestinal lesion was excised. The latter, strange to say, does not at first induce any symptoms on the part of the bowels Diarrhea as an early symptom is rare, constipation is more common The stools are irregular, on some days very abundant If large numbers of tubercle bacilli are found in the stools of a patient who is careful not to swallow his sputum, an intestinal lesion is almost certain Spontaneous pain in the intestine is a comparatively late symptom but tenderness on palpation may be noted early although local tenderness may occur from other causes in intestines free from tuberculous involvement The appendix is rarely the first site of this secondary intestinal tuberculosis, although it usually shares in an adjoining process The peritoneum is seldom involved in this secondary intestinal tuberculosis, but the latter generally causes a characteristic and persistent fever with possibly a transient rise after meals, with normal temperature between 4 and 7 p m The course of a primary intestinal tuberculous process is slow and torpid, in two of his cases it healed spontaneously Excision of the lesion often cures completely The secondary intestinal process is entirely different, its course is acute and rapidly progressive Jaquerod knows of no instance of a spontaneous cure, nor of a cure by medical means, but prompt operative treatment may and often does cure The process generally begins in the ileocecal region and does not spread for some time

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIII No 2 pp 201-315 Last indexed July 13 p 151

55 Finkler's Methylene-Blue and Copper Salt Treatment of Tuberculosis. (Ergebnisse des Finklerschen Heilverfahrens bei der Impftuberkulose des Meerschweines) Gräfin v Linden (Meine Erfahrungen bei Lungentuberkulose mit Jod Methylenblau und Kupferpräparaten) E. Meissen (Ditto bei äusserer Tuberkulose speziell bei Lupus.) A. Strauss
56 The Blood Pressure in Pulmonary Tuberculosis (Klinische Beobachtungen über das Verhalten des Blutdrucks während der Lungentuberkulose) Schnitter
57 Iron Tuberculin in Treatment of Pulmonary Tuberculosis (Zur Behandlung der Lungentuberkulose mit Eisentuberkulin) O Amrein
58 *Tubercle Bacilli in the Blood in Children (Ueber das Vorkommen von Tuberkelbazillen im strömenden Blut bei Kindern) K. Kennerknecht
59 Nerve Tabes (Tabes nervosa eine Krankengeschichte von 1819) A Pagenstecher
60 *Percussion of the Apices in Early Diagnosis of Tuberculosis (Die Ausmessung der Krönigschen Schallfelder und ihre klinische Bedeutung) E. Ebstein.
61 *Pseudoleukemia (Zur Aetiologie der Hodgkinschen Krankheit) K Beumelburg
62 *Experiences With the Cutaneous Tuberculin Reaction (Die kutane Tuberkulinimpfung nach v Pirquet 800 Fälle) H Berberich

No 3 pp 317-503

63 *The Suction Mask in Treatment of Pulmonary Tuberculosis (Klinische Erfahrungen mit der Lungen Saugmaske bei 52 Fällen von Lungentuberkulose) H Berlin

58 **Tubercle Bacilli in the Blood in Children.**—Kennerknecht examined the blood of 120 children at the Hamburg seaside sanatorium and found tubercle bacilli in 91 per cent of the children The proportion was 100 per cent in sixty eight cases of certain tuberculosis, 90 per cent in twenty suspects, and 74 per cent of thirty one children who were being cared for on account of some other affection such as otitis, scoliosis adenoids, anemia, hysteria, asthma, eczema, etc., and were not suspected of tuberculosis The direct determination of the bacilli in the blood is of the greatest diagnostic importance, being far more reliable and of earlier occurrence than the skin reactions (Pirquet and Moro) The bacilli may be found in the blood at the very onset of infection, before any clinical symptoms have developed The identity of the bacilli found was confirmed by inoculation of *animals in certain cases When tubercle bacilli circulate* permanently in the blood, the possibility of transmission through the placenta is confirmed In one of the animals tubercle bacilli were found in the placenta, liver and spleen *of a previously dead fetus Kennerknecht followed the* Schnitter technic as modified by Kurashige, the latter found the bacilli in all of 155 persons examined, including forty one in the incipient stage of tuberculosis

60 **Clinical Estimation of the Percussion Findings.**—Ebstein has the handle of his percussion hammer marked off in fractioned centimeters, and with this he measures the areas of the physical findings By this means he obtains an instructive oversight of the comparative findings in each apex

61 **Pseudoleukemia.**—Beumelburg was able to detect Much's granula on post mortem examination in five cases of Hodgkin's disease, in none of which had there been anything during life to suggest tuberculosis The same findings are also reported from a case of Sternberg's tuberculosis of the lymphatic apparatus

62 **The Cutaneous Tuberculin Reaction.**—Berberich reports the findings in 800 children tested with tuberculin by the Pirquet technic, as also other members of their families in many instances The outcome confirms the great value of the test under the age of 3 After this age, the reaction is not so easy to interpret on account of possibly inactive tuberculosis At any age a negative reaction with certain tuberculosis seems to be an unfavorable sign

63 **Kuhn's Suction Mask in Treatment of Tuberculosis.**—Over 137 pages are devoted to the account of the application of the mask in fifty two cases of pulmonary tuberculosis in various stages at the Cologne tuberculosis clinic The mask was used over three months in the majority of the cases, the shortest period being three weeks and the longest over ten months. The sittings were fifteen minutes twice a day at first, increasing by the end of the week to an hour sitting twice a day and finally three times a day The results were disappointing

Berliner klinische Wochenschrift

July 15 XLIX No 29 pp 1357-1404

64 *Effectual Modification of Leukemic Blood Picture by Benzol (Beeinflussung der Leukämie durch Benzol) A v Koranyi
65 *Palmin Test of Pancreas Functioning R Ehrmann
66 Nodose Rheumatism. (Ueber den Rheumatismus nodosus mit bes Berücksichtigung des pathologisch anatomischen Befundes) F Frank
67 Pregnancy After Artificial Fecundation Six Cases (Schwangerschaft nach künstlicher Befruchtung) J Hirsch
68 *Summer Infant Mortality in Berlin 1911 (Die Säuglingssterblichkeit in Berlin im Sommer 1911) H. Liefmann and A Lindemann
69 *Pericranial Sinus (Ueber Sinus pericranii) A Müller
70 *Keeping Patients Under Influence of Scopolamin in Treatment of Morphin Addiction (Die protrahierte Scopolaminnarkose *bei der Morphiumentziehung) A Fromme*
71 Training Cripples to Be Self Supporting (Schul und Handwerksstuben des Krüppelheims in Verbindung mit der ärztlichen Tätigkeit) W Schasse
72 Vaccine Therapy of Gonorrhea in Women (Ueber die spezifische Behandlung der weiblichen Gonorrhöe) A Schmitt.

64 **Efficacy of Benzol in Leukemia.**—Koranyi has applied to practical use Barker's casual discovery that benzol (benzene, not benzin) has a destructive action on the blood. Barker encountered three cases of hemorrhagic purpura with aplastic anemia in three girls who worked with benzol in a factory. Two of the cases terminated fatally. Selling's experimental research has further established that benzol first increases the production of leukocytes and then has a destructive action on them, while the number of reds is not modified. At the same time the bone marrow, spleen and lymphatic apparatus show marked aplasia. This action of benzol is just what is needed in leukemia, and Koranyi reports a typical case to show the marked benefit which followed its systematic administration. This patient was a woman of 32 who noticed seven months ago that her spleen was enlarging, she became very weak and complained of pains in the sternum. The blood count showed 3,100,000 reds and 220,000 whites, including 70 per cent. polynuclears and 16 per cent. myelocytes. An exposure to the Roentgen rays was made Feb. 1, 1912, two weeks later the benzol was commenced, giving from 3 to 4 gm. a day. By April the whites had dropped to 65,000 and by the middle of May to 8,000 and the general health showed marked improvement. The patient is now attending as usual to her household duties. There were no failures under the benzol treatment of chronic leukemia. The spleen subsides to normal size in time, the lymph nodes seem to feel the influence less. The benefit is more gradual than from roentgenotherapy, but the benzol may succeed in cases in which the other has failed. Patients who have already had Roentgen treatment seem to respond more readily to the action of the benzol. No serious by-effects were observed from the benzol, not even in one case in which he gave up to 5 gm. a day, but some disagreeable effect was noted in some cases, a burning in the stomach, eructation, transient tracheobronchitis and dizziness. The stomach disturbances can be avoided by giving an equal amount of oil in a capsule along with the benzol. Koranyi has also applied the benzol in a case of polycythemia with enlarged spleen, and the benefit was encouraging. During the first week the reds increased from nine to ten millions but then dropped in the course of the next three weeks to 6,700,000. The patient then considered himself cured and has not *been seen since.*

65 **Copper Test for Pancreas** ***Functioning.***—*Ehrmann* extols the simplicity, rapidity and *convenience of the test* described. It is based on the fact that *a neutral fat free* from fat acids, is not split by *anything but the fat splitting* ferment from the pancreas. Consequently, by addition of a stain which acts only on the fat acids, as they *are split* by the ferment, the presence *of the latter is rendered evi*dent. Commercial palmin has *proved the most suitable* neutral fat for the test. *The patient takes a test breakfast* of 30 gm. of ordinary rice starch *dissolved and warmed in* a glass of water, a trace of salt is *added and then* [illegible] of palmin liquefied by heat, *is stirred into it and the* [illegible] drunk from a glass. *After two or two and a half* [illegible] the contents of the stomach *are siphoned out and* [illegible] mixed in a test tube *with equal part of a mixture* [illegible] parts petroleum *benzin and benzol to 100 parts* [illegible] After the test tube *has been well shaken* [illegible] ether layer is *decanted into a second* [illegible] mixed with *an equal part of a 3 per cent* [illegible] acetate in *distilled water (Solution II)* [illegible] then assumes *a bright green tint* [illegible] tent in fat *acid. It none has been* [illegible] *owing to the absence of* [illegible] change *in the fluid. The* [illegible] is *the index of the pancreatic* [illegible]

66 *Infant Mortality* [illegible]

The *study of the* [illegible] *along the lines of the* [illegible] *July 2, 1912, p.* [illegible] *and of infect*[illegible] *been ascribed to* [illegible] *stroke or* [illegible]

food and resisting powers against infection so that bacteremia and suppurative cutaneous affections are liable to develop.

69 **Pericranial Sinus.**—Müller reports the case of a girl of 13, otherwise normal who had a small tumor in the region of the left parietal eminence. It had been noticed since childhood but had only lately begun to cause severe headaches. A cavity containing circulating blood communicated with the blood spaces of the inside of the skull. The tumor was easily removed. In this as in the various cases on record, which he reviews, the trouble seems to be some anomaly in the course of the vessels, possibly with a traumatic origin.

70 **Keeping the Patient Constantly Under the Influence of Scopolamin in Treating Morphin Addiction.**—Fromme injects the scopolamin systematically to keep the patient under its influence until all the symptoms caused by withdrawal of the morphin have subsided. Three or four days are generally enough but seven or eight may be required in severe cases. No untoward by-effects are liable with proper management of the scopolamin; the dosage has to be calculated for each individual case. The morphin addict bears doses of scopolamin which would prove unconditionally fatal for any one else, Fromme asserts. The ordinary dose of scopolamin is under 0.002 gm. but he has given his morphin patients up to 0.015 gm. a day without injury and he has applied this prolonged scopolamin anesthesia in about 150 cases during the last year, and always with the best results and not the slightest untoward by-effects. The patients retain their wits sufficiently to attend to the calls of nature, but they must be kept continuously in bed. If the dose of scopolamin is too large, the patient is restless instead of drowsy. He warns that the nursing and care of the patient are of paramount importance in these cases.

Correspondenz Blatt für Schweizer Aerzte, Basel

July 10, XLII, No. 20, pp. 729-776

73 Conservative Treatment of Tuberculous Lymphadenitis. (Konservative Behandlung der Drüsentuberkulose.) H. Iselin.
74 Case of Hematomyelia and Syringomyelia After Trauma. P. Wolfer.

Wiener klinische Wochenschrift, Vienna

July 11, XXV, No. 28, pp. 1071-1110

75 **Direct Sunlight in Treatment of Tuberculosis. (Die Sonnenbehandlung der Tuberkulose.)* Rollier.
76 *Physostigmin in Treatment of Tachycardia.* R. Kaufmann.
77 Tuberculous Serositis With Clinical Picture of Banti's Disease. (Unter dem Bild der Bantischen Krankheit verlaufende Tuberculo[illegible]ser[illegible]arum.) L. Skutetzky.
78 Tolerance of the Eye for Foreign Bodies. (Zur Toleranz des Auges gegen Fremdkörper.) L. Szarrasy.

75 **Direct Sunlight in** ***Treatment of Surgical Tuberculosis.***—Rollier here [illegible] *views his entire experience with 650 patients* with surgical tuberculosis, *who have been in his charge at* Leysin since 1903. *Of the total 450 cases of closed tubercu*[illegible] [illegible] *cured and forty-one improved, only* [illegible] *Five of the pati*[illegible] *well while under his care or* [illegible] [illegible] *Tuberculous lesion*[illegible] [illegible]

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84 Mushroom Poisoning With Lactic Acid and Increased Amino Acids in the Urine (2 tödlich verlaufene Fälle von Pilzvergiftung) W Frey
85 Physiologic Arhythmia E Mosler
86 Roentgenoscopic Diagnosis of Ulcerative Colitis E Stierlin
87 *Permeability of the Meninges (Untersuchungen über die Durchlässigkeit der Meningen für chemische Stoffe) H Rotky
88 Transmissible Fowl Leukemia and Its Independence of Fowl Tuberculosis (Uebertragbare Hühnerleukämie und ihre Unabhängigkeit von der Hühnertuberkulose) H Hirschfeld and M Jacoby
89 *Aortitis and Fever P M Popoff

83 **Roentgenotherapy of Leukemia.**—Nemenow reports eight cases and tabulates the metabolic and other findings in great detail in the four older cases He explains the remarkable benefit from the exposures as due first to the action of the rays on the leukocytes and then on the lymphoid tissue of the blood producing apparatus as the radiation is continued But this does not explain the changes which become evident in the organs remote from the exposed area, the subsidence of the enlarged lymph nodes and the changes at distant regions in the bone marrow—all this points to another factor, the action of some leukotoxin or leukolytic ferment or possibly cholin, which exerts an inhibiting influence on the excessive proliferation of the tissue in the blood producing apparatus His one patient with acute lymphatic leukemia was not benefited by the exposures and soon died In three chronic cases the treatment has been applied too recently for definite conclusions In the three older cases of chronic myelogenous leukemia marked improvement was obtained and what amounts to an actual cure in one very severe case

87 **Permeability of the Meninges for Drugs**—Rotky writes from the medical clinic at Prague in charge of von Jaksch to report extensive experiments in this line with eight different drugs They were all refound in the urine, but only hexamethylenamin once, and one other drug a bromid were refound in the cerebrospinal fluid Mercury, iodids and salicylates were never detected in the cerebrospinal fluid The permeability of the meninges is thus more a property of the drug than of the meninges The fluid was constantly free from bile pigments, even in this case of long continued severe jaundice the cerebrospinal fluid was persistently limpid and colorless Hexamethylenamin passed into the fluid with remarkable rapidity in a case of tuberculous meningitis the drug was present in the urine an hour and a half after taking 2 gm and in two hours after taking 3 gm, in a case of hypophysis tumor As bromids seem to be able to substitute the chlorids in the tissues, the bromids occupy a place apart from other drugs, displaying at times an apparently special affinity for the tissues When the meninges are injured by the toxic action of mercury, the salicylates and iodids they are liable to permit their passage into the fluid, but not in therapeutic dosage

89 **Aortitis and Fever**—Popoff reports three cases of febrile aortitis and states that at the clinic in his charge at Moscow there were forty eight cases of aorta disease in the last two years Excluding the sixteen cases in which the trouble was the consequence of acute rheumatism, he found a history of syphilis in all but three of the thirty two others

Zeitschrift für Urologie, Berlin

July VI No 7 pp 541 620

90 *Fungus Like Growth in the Bladder (Ueber Malakoplakia vesicae urinariae) M Waldschmidt
91 *Diagnosis of Ureter Fistulas (Zur Diagnose der Harnleiterfisteln) C Adrian
92 Combined Cystoscope Lithotriptor and Evacuator H Young (Baltimore)
93 *Preneurotic Urine Orlowski

90 **Malakoplakia of the Bladder**—Waldschmidt gives a colored plate to show the findings in the two cases previously reported by E. Fraenkel A third case has come under his observation since and he has found records of necropsies in twenty others Only one patient was a child, the others were all over 40 The protruding patches are generally scattered over the walls of the bladder and often have a depression in the center suggesting ulceration They do not seem to cause symptoms until they become secondarily infected, generally with colon bacilli Tuberculous processes in the bladder have never presented such a picture in Waldschmidt's experience, although in several of the above cases the patients were tuberculous In eight of the total twenty three not a trace of tuberculosis could be detected anywhere After the excrescences become infected, the resulting cystitis runs a sluggish, torpid course

91 **Diagnosis of Ureter Fistulas**—Adrian's article is based on thirteen cases in most of which the minute fistula escaped detection by the routine methods In two cases the fistula was congenital, in ten cases the fistula resulted from an abdominal operation and in two from a vaginal An interval of six weeks to nearly three years had elapsed before he saw the patients after the first discovery of the drizzling urine Cystoscopy with or without ingestion of a stain, failed him in several cases, and the findings with catheterization of the ureters were misleading in others He consequently devised a new method which has proved reliable and instructive while the technic is comparatively simple It is based on the fact that neutral red and phenolsulphonethalein in the test tube and in the body vary in tint according to the reaction of the medium By subcutaneous or intramuscular injection of one of these stains and filling the bladder with some medium which decolors the stain (a weak alkaline solution for the neutral red and an acid solution for the other), the difference in the tint of the urine from each ureter mouth will show which ureter is voiding all the urine into the bladder, and which is losing some on the way The findings are rendered more prominent by receiving the urine from the suspected ureter into a tampon impregnated with some substance which shows up more vividly the color of the stain, an acid for neutral red and an alkali for the other stain

93 **The Urine Just Before Outbreak of a Neurosis.**—Orlowski calls attention to the changes in the urine he has observed in patients on the verge of a nervous breakdown The curve of acidity of the urine shows a different rise and fall, being lowest morning and night, contrary to the normal decline in the middle of the day The phosphates also behave differently and the indican content increases Orlowski has been studying for years the behavior of indican in the blood in various conditions, and is convinced that the proportion of indican in the urine is an index of low vitality, relaxation of the body, especially of the nervous system It is thus a practical index of impending nervous breakdown Even healthy persons, when they feel languid and without much vitality, have indican in their urine transiently Persons with the paradoxic acidity curve mentioned above often have abnormal proportions of indican in the urine

Gazzetta degli Ospedali e delle Cliniche, Milan

July 9 XXXIII No 82 pp 849 856

94 Factors in Uremia (Su alcuni fattori dell uremia) G A Pari
95 Exophthalmic Goiter (I gozzi esoftalmici) Debove.

Policlinico, Rome

July XIX Medical Section No 7, pp 288 336

96 Case of Edema From Ascending Neuritis F Giannulli
97 Syphilitic Nature of Various Syndromes of Diverse Localizations (Su la natura sifilitica di sindromi morbose con varie localizzazioni) L. Massini
98 Metabolism in Pellagra (Ricambio materielle nella pellagra) P Preti
99 Improved Culture Medium for the Tubercle Bacillus (Su di un terreno di cultura per lo sviluppo rapidissimo del bacillo tubercolare) G Valletti.

Riforma Medica, Naples

July 6 XXVIII No 27 pp 731 756

100 Urine-Serodiagnosis of Tuberculosis (Sulla diagnosi della tubercolosi col metodo di Marmorek) V de Bonis and C Renga
101 Total Destruction of Lenticular Nucleus Without Motor Aphasia (Sopra un caso di lesione totale del nucleo lenticolare di sinistra senza afasia motoria) U Raggi

Semana Medica, Buenos Aires

June 13 XIX No 24 pp 1089 1136

102 Case of Polyserositis. (Cirrosis cardio tuberculosa.) J S Llendo
103 Hygiene of Childbirth A. Chueco

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A PLEA FOR THE MORE FREQUENT SCIENTIFIC EMPLOYMENT OF PHYSICAL THERAPEUTICS *

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ATLANTIC CITY N J

The methods and practices of physical therapeutics have suffered so much discredit through extravagant and unscientific theories and from exaggerated statements of misguided enthusiasts that one hesitates to offer further contributions on the subject, knowing how critically any claim will be received, regardless of whether or not it bears evidence of modest observation or practical merit In discussing this subject, my apology is for the attempt, rather than the topic

Physical therapeutics, as comprehended in this discussion, applies to our knowledge of the best care for the sick I admit the technical vagueness of this definition and, in explanation, state merely that its purpose is to bring into the discussion the practical, as well as the scientific, side of the question Viewed from this standpoint, a little thought will make it easily comprehensible

In the time allotted I can do no more than very briefly refer to some of the well-known means employed in the restoration and preservation of health and the discussion will deal more particularly with reference to toxic and metabolic perversions occurring from untoward physical, chemical and psychic influences, which are more amenable, in part at least, to physical than to chemical therapeutics I take it for granted that those to whom this paper is addressed are already generally familiar with the usual forms of physical therapeutics, though not necessarily conversant with the detailed application, such, at least, has been my impression concerning the busy practitioner

Systematic functional activity may be stimulated, and otherwise energized, by various mechanical, manual and natural forces, but, if improperly used, these forces are as potent in producing harmful results as they are in producing wholesome benefits when scientifically employed It has also been strongly contended that function should be the guide for the exercise of the parts, as environment contributed only to promoting general development, but, in this contention, the relation of impaired physiologic to pathologic function must be a matter of personal investigation and judgment It is regrettable that, outside of sanatoriums, comparatively little attention is paid by the profession in this country to the scientific direction of any of the well-known physical therapeutic methods For instance, when a physician desires to employ massage as a therapeutic agent he does little more than call a masseur direct that he visit Mr A and give him a general massage-treatment thinking, thereafter, very little of the responsibility attached to explicit directions in the case While this statement is admittedly somewhat overdrawn, nevertheless it emphasizes my point that too little attention is given *to definite directions in definite conditions, for* definite purposes

It therefore is a common occurrence for both physician and patient to be disappointed at the result of massage-treatment when too often the fault is due chiefly to routine application, in no other therapeutic system is definite instruction, with reference to principle and detail, more necessary than in physical therapy and the strictest attention to both will probably avail little, unless the diagnosis also be com[illegible]te

It is these facts, which have been so forcibly presented to me during the past twenty years of my practice in this city, that have made me venture this plea to our profession and urge a more careful and scientific study of the application of these forces as therapeutic agents

The ever-changing and complicated conditions, physical and social, which are the outgrowth of a complex civilization, occasion various disturbed functional and metabolic changes in the human economy These manifest conditions have no pathologic or microbic cause to which a definite responsibility may be attached, and are too often the results of mere accidental and indeterminate disturbances over which one has little *control*, and to which the administration of pharmacotherapeutic agents can give *little* assistance

Therefore, I particularly direct attention *to this class of physical, emotional and functional derangements for* which physical therapeutics are most *happily helpful in* the reestablishment of the normal *functional and systemic* balance They are applicable *and particularly* [illegible]ful in the convalescent *period of various infections* [illegible] other debilitated conditions *from whatever* [illegible] which muscular activity *physiologic forces* [illegible] energy have *suffered from the proce*[illegible] are also most *helpful in stimulating* [illegible] exhausted force[illegible] resulting [illegible] offer our best contrib[illegible] much needed in the [illegible]

It is little [illegible] general public [illegible] plainingly of the [illegible] chief repre[illegible] direct properly [illegible] of physical the[illegible] still admini[illegible] pathe[illegible]

Since phys[illegible] sage, *electroth*[illegible] when *conti*[illegible] muscular system, functional deficiencies, and tardy mental development not infrequently seen in childhood, it seems astonishing that so many so greatly neglect the intelligent employment of these therapeutic agents But perhaps the physician himself is no more to blame than his *alma mater,* which has been particularly conspicuous for the absence of any thorough course in physical therapeutics in its curriculum During my college career, apart from the orthopedic courses given, very little direct or scientific instruction was given in physical therapeutics, and I regret that in several of our leading colleges much the same situation, with minor additions, still prevails

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* Read in the Section on Practice of Medicine of the American Medical Association at the Sixty Third Annual Session, held at Atlantic City June, 1912

Whence comes the most of our knowledge of physical therapeutics? Not from medical colleges, not from schools of science, in which it should be taught, but from sanatoriums, physical-culture schools, hydrotherapy spas, mechanotherapy and osteopathic colleges, irregulars, etc Little wonder, then that there is to-day a rapid growth in the patronage of these various cults and pathies, and in the public sympathy with legislative efforts toward their legal standardization and professional recognition Neither can we wonder at the attitude of our own patients toward these remedial forces and those who are administering them, for many of us refuse or neglect to employ them

Contrast the scientific knowledge and provision for this class of therapeutics in continental Europe with that of our own country, and you need no further reason for the annual exodus of thousands who take their multiple ills to some foreign therapeutic shrine for relief This need not, and should not, be the case, then, how may it be prevented? Not by your efforts, singly exerted, if you would change it, it will be through your alumni, acting collectively, demanding that medical colleges establish suitable courses in which thorough scientific instruction will be given to the future students in medicine

Fundamentally speaking, in my judgment there are three cardinal conditions that are directly concerned as both contributive and causative agents in the various diseases that are accompanied by toxemia They are intemperate food indulgence, indifferent muscular activity and inefficient elimination Indeed, whether fundamental or incidental, wherever and for whatever reason a toxic state maintains, the therapeutic agents that are most powerful in affecting normal balance, through physiologic means, are, without question, the most ideal remedies

Referring particularly to the infections under the head of cardiovascular diseases, both hypertension and incidental circulatory tension are present, and both vary necessarily, according to the nature and extent of the pathologic changes present In both, the patient may be afforded great relief, and the physician's anxiety lessened by the use of eliminating-packs, associated with prescribed rest and diet To be effective, the treatments should be applied with regularity and with as near a definite knowledge as possible of the pathologic and physiologic processes operating at the time The hot 'drip blanket pack" and the hot sea water tub (covered) may be employed, separately or alternately, with splendid results in most ambulatory cases, due consideration being given to the time, temperature and after-care of the patient

Knowledge and judgment are as essential in the employment of this, as of any other system of therapeutics Tension may be either compensatory or noncompensatory and it is with the former that most care and judgment need to be exercised

It is for these compensatory disturbances that some physicians are using the high-frequency current by means of the auto-induction coil with apparently good results While this has not as yet received general approval, whether because of the expense attached to procuring the outfit or the natural slowness with which many physicians resort to mechanical measures as a therapeutic means of relief awaits future judgment There is good reason, however, for believing that the experienced operator will find in electricity many aids for disturbances incidental to both functional and organic causes, that hitherto have not been closely studied or to which the current has not been most advantageously applied

In closing this very limited discussion of so vast and important a subject, I would emphasize the fact that in this as in other sciences, "knowledge is power," and that the situation will not and cannot change until the subject of physical therapeutics becomes a part of our medical curricula and is authoritatively and more fully taught, in our medical colleges, and our physicians are more thoroughly trained in the science, as well as in the administration of this division of therapy

1616 Pacific Avenue

ABSTRACT OF DISCUSSION

Dr William Gray Schauffler, Lakewood, N J What has been stated by Dr Marvel I believe to be entirely true The great trouble in the use of physical therapeutics lies in two facts First most of the medical men do not sufficiently understand either the principles or the means of application Secondly, they are careless in their work and, therefore, they are apt to be disappointed in their results and physical methods are discredited There is enough good resulting from the employment of physical therapeutics to justify the use of such methods by all practitioners Many men say that they have no time to be bothered with these methods of treatment and are opposed to taking the time required to learn their use The employment of physical therapeutics in many cases pays in more ways than one First we can give a certain number of patients relief from their symptoms which they can get in no other way In the second place, we can ease their minds I do not want to be understood as emphasizing too much the effect of this treatment on their mental condition But the state of the mind of the patient needs attention as well as the body and I do wish to emphasize the fact that the patient's mind can be made easy by the employment of this method of treatment I urge on the medical men of this Section that they take more pains in informing your college graduates regarding the subject under discussion, the more scientific employment of physical therapeutics Many mistakes are made by using apparatus that is not fitted for the needs of the individual and especially in giving too long treatments with the high frequency current hydrotherapy, and other modalities I do not believe in placing a patient under treatment for half an hour when five minutes will answer the purpose I also believe that we should treat these patients ourselves and not leave them entirely to our assistants

Dr. Solomon Solis Cohen Philadelphia Dr Marvel is too sweeping when he states that physical—or as I prefer to say using a broader term, physiologic—therapeutics is not taught in medical colleges My own first systematic course of lectures given some twenty five years ago at the Jefferson Medical College was on this subject and although I have switched over into clinical medicine my colleague, Prof H A Hare has embodied a like course in his teaching from the chair of therapeutics Even before the time mentioned Professor Bartholow gave a few lectures annually on these topics, and before Bartholow, my brother J Solis Cohen gave courses on electrotherapeutics hydrotherapy and aërotherapy Here then, is one college, at least, which has taught physical thera peutics systematically for more than a generation, and I do not think it is the only one, though it may have been the pioneer. The fault is not with the colleges but largely with the medical societies. Let a man report to the ordinary medical society—not excluding this Section of the American Medical Association—the results that follow scientific electrotherapy, hydrotherapy, aerotherapy, pneumotherapy, thermotherapy, psychotherapy, phototherapy—anything except x-rays, which are getting to be semirespectable—and at best he is listened to with polite indifference. Commonly he is not listened to at all. It takes the heart out of one to be treated in that way! No wonder that these methods fall into the hands of quacks, charlatans, Ishmaelites—or into those of a few exceptionally brave men who knowing the power for good that is in their hands are not deterred from using it by the fear of evil names or professional ostracism. But let me not be unfair, the fault is not entirely with the societies. Some advocates of physiologic therapeutics and of its physical, as well as its psychical methods, are at least a trifle over enthusiastic, they indulge in vague hyperbole, they fail to observe exactly or to report accurately. Thus they arouse a prejudice from which more critical observers and more sedate reporters suffer.

Dr. Schauffler's recommendation that every physician equip himself for employing these methods of treatment personally is impracticable. Not every physician can spare the time. Of course, one may prefer to do certain things oneself but in the majority of cases we must depend on some one who has devoted himself to the perfection of the necessary technic. This cannot be acquired without long experience—which means specialization. We must therefore either specialize or consult one who has done so after a sufficiently long training in general practice.

Dr. A. Bern Hirsh, Philadelphia: It is a curious fact that American physicians have until now viewed the subject of non-drug treatment of disease askance. They looked on the reports of improvement without drugs as something irregular. On the other hand, we are all aware of the fact that many patients go abroad year after year visiting foreign spas consulting with specialists, and we know that they receive help from the use of the various non-drug treatment methods. Something must be radically wrong here at home. Some of the medical schools have been teaching this branch of therapeutics in a haphazard way but I am convinced that it is not the attitude of the entire profession to carry on physical therapeutics with the thoroughness or the directness, or the persistence they should.

It is impossible to entrust physical therapeutics to any nurse or even practitioner, who has only a theoretic knowledge of the principles of electricity as it should be applied to any disease. And what is as important as a thorough knowledge of electricity is a willingness to apply modern technic and diagnostic methods, the practitioner should also have the training to apply every technical method possible in differential diagnosis before he resorts to non-drug treatment methods.

Dr. Hobart A. Hare, Philadelphia: The employment of remedial agents other than drugs is very important from a number of standpoints. In the first place they possess in many instances great power for cure and they are of value from the standpoint of psychotherapeutics, the influence of mind over disease. They enable us to impress on the patient the fact that we have a knowledge of many methods of treating disease. Again these various treatments interest the patient. This meets competition by quacks or those who are not considered quacks but irregular practitioners who know little medicine but understand human nature. When you order for your patient medicine in a glass of water and tell him to take a teaspoonful every few minutes the patient is then made to do something for himself. A regular practitioner too often orders for his patient a certain drug and tells him to take it three times a day, which is all that is required by science, but something has been left out which would be for his betterment, namely, keeping him busy. Another point is that unless the physician is very careless in the employment of these measures he rarely can do great harm with them, whereas we know that any drug capable of doing good if it is abused can do harm. A third point is that these measures bring to the physician's mind the importance of studying more carefully the physiology of the patient. When I say physiology I use the expression in a broad sense and include a study not only of what is normal but what is abnormal in the way of body functions. The use of the cold bath and its various modifications or the hot pack with its modifications, the use of exercise and the action of these agents on the vascular and nervous systems is something that is at times little less than miraculous. A complete readjustment occurs by means of remedial agents other than drugs.

I am heartily in favor of such papers or even in the formation of a Section which will serve to benefit us by increasing our knowledge and which will enable us to educate the whole profession in the need of recognizing the importance of these remedial measures other than drugs. The time is past when we tell our patients only to take so many drops of this and so many drops of that. We now make a very careful and critical study of every case and prescribe not only drugs if needed but other remedial agents.

While I believe in increasing the popularity of the use of remedial agents other than drugs we should at the same time guard the laity against certain dangers. There are a large number of remedial agents other than drugs which are put before the public not for their best interests but purely for commercial purposes. The laity is inclined to try many of them and to resort to them in a way not profitable except to the irregular practitioner who advocates their use.

Dr. John Mumford Swan, Rochester, N. Y.: For the last two years I have been engaged in the direction of the administration of various forms of physiologic therapeutics and I have been much astonished at the amount of benefit that it is possible to produce without the use of drugs in patients suffering from chronic diseases. In all probability the principal reason why these methods are not more frequently used is that the majority of the members of the profession are unfamiliar with them and with the results to be obtained by them. In many places there is no opportunity for physiologic methods to be employed because no properly equipped institution is at hand. We must, however, bear in mind that until comparatively recently the majority of men engaged in prescribing these forms of treatment have been, to say the least, not highly ethical in their methods. Too much good has been claimed for the methods and the publications of case reports have been vague and unscientific. This phase of the matter can easily be remedied by the publication of careful scientific studies of series of cases which include failures as well as successes. It is also necessary for an institution equipped for the administration of the various forms of hydrotherapy, thermotherapy, phototherapy, mechanotherapy, etc., to divorce absolutely the business and the medical departments.

Dr. Philip Marvel, Atlantic City, N. J.: I purposely avoided comparing colleges and detailing their courses in physical therapeutics believing this was a matter more for the discussion than for the paper and wishing to be fair to all. I am willing now to leave the question as it has been discussed by Drs. Schauffler, Cohen, Hirsh and Hare.

Treatment of Bites of Dogs.—The dog should not be killed but chained up and kept under close observation for a period of sixteen days at the least. If he is infected with rabies he will show symptoms in that time and in all probability will die within ten days. It is a fatal disease in animals. Pasteur treatment to be effective must be instituted within six days after the infliction of the bite or its usefulness is very much impaired. In doubtful cases or where the animal has disappeared it is better to give the treatment than to take chances because the virus is harmless if given under proper precautions and if the animal happens to have been rabid we have probably saved the patient from a dreadful death.—[illegible]

PHYSIOLOGIC BASIS OF THORACIC SURGERY *

JOSEPH MARSHALL FLINT, M.D.
NEW HAVEN, CONN.

In the development of abdominal surgery, physiologic methods of investigation followed and explained, in many cases, conditions which had been learned empirically at the operating-table. With this experience before us, we should, if possible, utilize these methods to throw any possible light on the harmlessness or seriousness of the details of operative procedures in order to facilitate our work on human beings. Accordingly, a series of typical thoracic operations was planned on animals connected with a kymograph, simultaneously recording the respiration and blood-pressure, in order to determine what reactions the medullary centers would yield to various operative procedures. It is, of course, understood that these are not reactions to accurate stimuli but in a physiologic sense, to the gross and crude trauma of an ordinary operation.

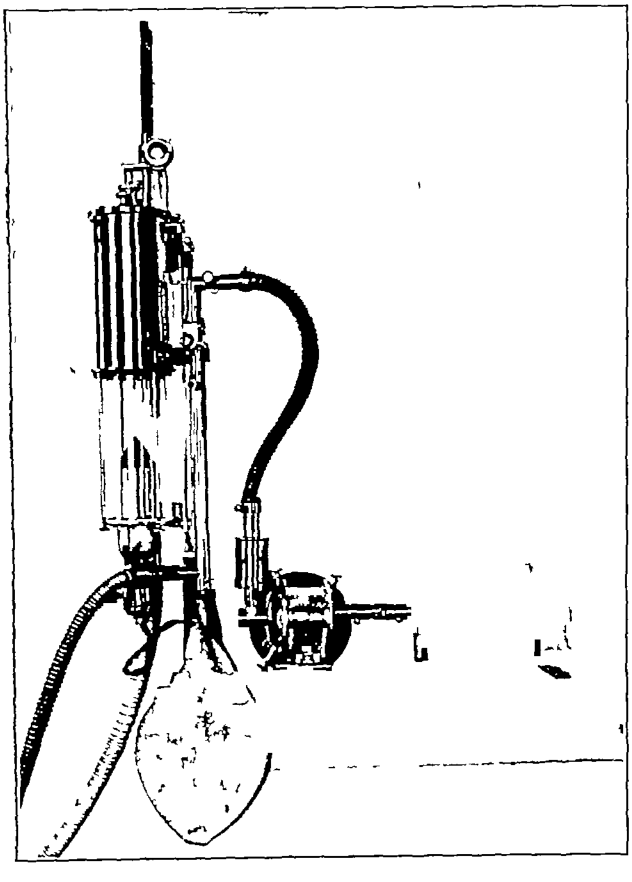

Fig. 1.—The apparatus viewed from the side showing the arrangement of the motor blower and rheostat and their relation to the etherizing and warming chambers.

The apparatus used for anesthesia in these experiments was an improved form of the instrument I described two years ago,[1] the first appliance that could be used for insufflation pharyngeal anesthesia, or positive pressure differential at will by simply varying its terminal connections. The apparatus consists of two parts, a motor and pressure blower, and the etherizing chamber with a water-valve. A small ⅛ horse-power compound wound motor furnishes the power to drive the blower, which is specially built for the apparatus and which is connected to the motor by means of a universal joint. The speed of the motor is controlled by a small rheostat. The blower is small and compact and furnishes an ample volume of air for both insufflation and pressure-differential when driven at relatively low speeds. Attached to the blower is a small accessible filter allowing the filtration of the air through a layer of cotton 4 cm. in thickness. The motor, blower and stand fit in a case measuring 10 by 10 by 20 inches. In case of failure of the electric current a simple connection to an oxygen tank is provided allowing the operation to proceed without interruption. Such a contingency is, however, extremely unlikely to arise.

The air passes from the blower to the etherizing chamber through rubber tubing bound with aluminum wire to prevent kinking. The anesthetizing chamber is divided into two parts, the ether reservoir and the evaporating chamber below where the anesthetic is volatilized and mixed with air and warmed. The reservoir is of 900 c.c. capacity and is provided with a funnel to permit refilling. On the top, a thumb-screw controls the supply of ether to the evaporating chamber below, which can be varied from any number of drops a minute to a steady stream. A small tube passes from the volatilizing chamber opening near the top of the reservoir to equalize the pressure above the surface of the ether with that in the chamber below. This can be closed by a screw valve should it become necessary to refill the reservoir during the progress of an anesthesia. The compressed air is conducted to the volatilizing chamber by a tube which delivers it at one side of the warming cone, on the apex of which ether is dropped from the valve above. This cone contains a 36-candle-power carbon filament lamp which is used as a source of heat. The latter is quite sufficient, not only to volatilize the ether instantly, but to warm the mixture of ether and air which passes from the outlet tube to the mask. That this may be a matter of considerable importance will be shown in a later communication. The intake and outlet tubes from the volatilizing chambers are further controlled by a piston valve which yields a secondary and instantaneous control of the air circulation within the evaporating chamber by simply turning a small screw-head which is provided with an indicator. The ether chamber can be cut entirely out of the circuit by placing the indicator at *A* when either pure air or oxygen is sent to the mask or intratracheal catheter, with the indicator at *M*, one-half of the air is sent through the etherizing chamber, and the remainder short-circuited to the catheter or mask while with the indicator at *E*, the entire air-current is directed through the volatilizing chamber. Obviously any desired proportions of air and ether in mixture can be obtained by fractional movements of the valve. During the use of this valve, the air-current is not interrupted by its movements, but flows continuously either through the volatilizing chamber or directly to the mask. As a matter of fact, the anesthesias are all regulated with the dropping valve as this secondary control is used only in case of emergency.

From the volatilizing and warming chamber, the mixture is carried to the intratracheal catheter or mask by an aluminum wire-bound tube For insufflation, the pressure is read from a manometer at the side of the outlet tube Temporary reduction of the pressure to allow occasional collapse of the lungs in preventing the accumulation of carbon dioxid is accomplished by turning a blow-off valve between the blower and the evaporating chamber For pressure-differential, we have used either the Brat or a special modification of the Mayer-Denis mask In this method, it is well to have an equalizing bag inserted in the circuit, which we usually place either at the mask or on the outlet tube of the vaporizing chamber to care for sudden changes in the respiratory rate This avoids the necessity of running the blower at a speed commensurate with the maximum rate of respiration and, consequently, saves a considerable amount of ether From the mask another tube passes to the water valve the outlet of which is controlled by a tube which can be raised and lowered beneath the surface of the water, so that the pressure in the system can be regulated at will from 0 to 20 cm by means of a rack and pinion on which the pressure is automatically read For insufflation, the motor is run at the second speed while the first speed provides an abundance of air for the mask method The entire apparatus is demountable and can be carried in two small boxes It needs no care, save for the occasional oiling of the pressure blower and the motor The apparatus complete costs about $160

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* From the Surgical Laboratory of Yale University.

* Read in the Section on Surgery of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Flint: Yale Med. Jour., February, 1910.

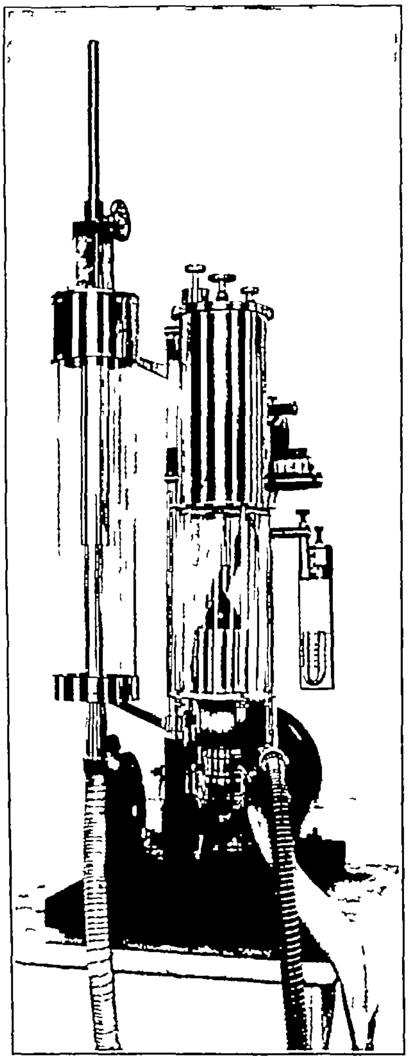

Fig 2—The apparatus viewed from the front showing the ether reservoir *warming and vaporizing chamber and water valve The* tubes lead to the mask for overpressure anesthesia

EFFECT OF POSITIVE PRESSURE AND INTRATRACHEAL INSUFFLATION WITH CLOSED AND OPEN THORAX

My observations coincide, so far as the positive-pressure method is concerned, almost entirely with those of Seidel With a closed thorax and the production and subsequent reduction of pressure-differences from 0 to 8 cm of water, the blood-pressure and heart-rate are scarcely affected, the influence of the changing pressures manifesting itself chiefly in a slowing of the respiration With a closed thorax and ether anesthesia, an increase in pressure results in a slight slowing of the rate due to a prolongation of the expiratory phase Subsequent reduction of the pressure restores the rate and type of respiration to normal Seidel reports this effect without anesthesia but asserts that it is neutralized by the anesthetic, a finding which I have not been able to confirm When the pressure is raised to a degree sufficient to prevent lung collapse just before the incision of the pleura, an open pneumothorax is without effect on the heart rate, blood-pressure or respiration When the pleura is opened without a pressure-difference, there is a period of three or four respiratory cycles during which the visceral and parietal pleura seem to cohere With the subsequent collapse of the lung from atmospheric pressure, the respirations become increasingly rapid and

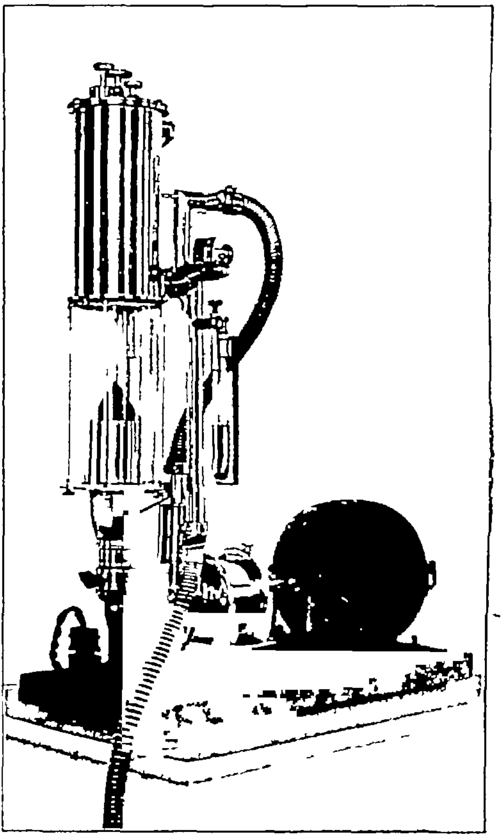

Fig 3—The apparatus arranged for intratracheal insufflation The pressures are read from the manometer The water valve is removed In this form the apparatus may also be used for pharyngeal anesthesia

dyspnœic in type. The heart-rate is slowed, the pulse takes on a vagus character, and there is a slight asphyxial rise in blood-pressure. These symptoms promptly disappear when the pressure is raised to a point sufficient to reinflate the lungs. Without reinflation, death from asphyxiation occurs in the average dog in from two to five minutes. During the period of an open pneumothorax, these phenomena may be elicited at will or obliterated after their appearance by allowing lung collapse or reinflation of the collapsed lungs through a decrease or increase in the pressure-difference as occasion demands.

In intratracheal insufflation, with a perfectly adjusted catheter, there is little or no change in the blood-pressure curve. The heart-rate remains unaffected and only transitory changes are observed in the pressure. The respiratory rhythm is usually altered but soon becomes regular for the given current of air flowing. The effect on the respiratory curve depends on the volume of air delivered through the tube. Under conditions of an increasing current, the rate may vary from normal to complete apnœa. Unless the relationship between the catheter and the trachea is optimum, there may be a considerable change in the character of the blood-pressure curve following the inauguration of the insufflation which manifests itself in a fall of blood-pressure and a definite vagus character to the pulse. This is slower than normal with a much greater amplitude to the pulse-curve. Even under such circumstances, a satisfactory anesthesia may be obtained. When the air-current has been increased to a degree sufficient to produce pressure apnœa, there is a fall in blood-pressure. The pressure soon rises, however. Likewise, a subsequent reduction of the air-current, reinducing respiratory movements, results in a transitory rise in pressure followed by a fall to normal. These phenomena result from the inflation and deflation of the lungs, and their effect on the pulmonary circulation under the changing pressure within the tracheal catheter. In consequence the ordinary effect of inspiration and expiration on the respiratory curve is inverted as the pressure rises during deflation and falls during inflation, the obverse of the ordinary respiratory wave. During these changes there is no variation in the heart-rate. I have never been able to produce apnœa after the removal of one lung. With the insufflation method, the opening of the pleura exerts no influence on the blood-pressure, nor is there any change in the character of the pulse-curve. The respiratory curve may be altered somewhat by the partial collapse of the lungs.

APPLICATION OF THE RIB-SPREADER

Careful application of the rib-spreader in both methods of anesthesia yields similar results, which consist ordinarily in a transitory change in the character of the respiration, probably due to a readjustment of the respiratory musculature or to a change in the pressure on the recording tambour. The heart-rate and blood-pressure remain unaffected. In certain experiments, the adjustment of the spreader is followed by a marked increase in the respiratory rate and accompanied by a fall in blood-pressure. I have explained this depressor effect as possibly due to the tearing of the parietal pleura at the angles of the wound when the incision is not long enough to permit the spreader to give the desired exposure, although the reaction is not typical of a reflex owing to an absence of the slowing of the pulse. This occasional reaction appears somewhat like the so called "pleural reflex" although I have never been able to produce the latter under anesthesia by scraping or traumatizing the parietal layer. The same thing is true of the "periosteal reflex," to which attention has been called. Under anesthesia, crushing fracturing the ribs or otherwise mechanically stimulating the periosteum is entirely without effect on the character of the respiratory or blood-pressure curves.

MANIPULATION OF AND TRACTION ON THE LUNGS

Manipulation of or traction on the lungs is followed by a fall in blood-pressure and slowing of the pulse and respiration, the extent of which varies with the degree of traction and manipulation. An analysis of the causes of this depressor reaction seems to show that it is due, as will be shown later, to tension transmitted through the bronchi or great vessels directly to the heart.

LIGATION OF THE LOBES

The effect of passing the ligatures around the root of the lobes with subsequent ligation varies in several experiments from a fall of blood-pressure and slowing of the heart-rate to instances where no effect is observed at all. A study of the factors involved here makes it appear as though the result is due to transmitted traction at the root of the lung. A ligature which is very carefully applied and drawn tight without tension on the root gives no reaction on pulse, respiration or blood-pressure. In view of the stormy symptoms that supervene in pulmonary embolism, the fact that one half of the lesser circulation may be eliminated in a complete pneumectomy with no effect whatever on the systemic blood-pressure, heart-rate or respiration is astonishing and shows that the symptoms following pulmonary embolism are probably due to the ensuing thrombosis. The tightening of the ligatures when applied around the entire root of the lobe apparently does not stimulate the vagus filaments which run along the bronchi, nor is there any indication that the ligature if carefully applied, elicits the so-called pleural reflex described by Brodie and Capps. In insufflation, the same absence of symptoms following this procedure is observed as in the positive-pressure method.

REMOVAL OF THE LOBES

The effect of the removal of the lobe is the same as that elicited by traction on the stumps and the reaction is due to the same cause. When the excision can be accomplished without pulling on the lung, no effect whatever is observed on the tracings.

TRACTION ON THE STUMPS

Whenever a traction is exerted on the ligatures attached to the lobe stumps, there is a fall in the blood-pressure, accompanied by a temporary inhibition of the respiration and a slight slowing of the heart-rate. The fall may equal 20 mm. of mercury, although the degree varies *directly with the amount of traction*. Traction on the upper lobe stump, or on the lower lobe stump, or on both, simultaneously, produces exactly the same effect. On the release of tension, the recovery of the blood-pressure is prompt and characteristic. The fact that the ligature can be tied around the stumps without irritating the terminal vagus filaments would seem to indicate that this phenomenon is not produced by vagus irritation but possibly follows an alteration in the efficiency of the heart action by a transmission of the traction through the great vessels directly to the heart itself or else is a reaction similar to that elicited by traction on the carotid. The reaction during intratracheal insufflation is precisely similar.

CRUSHING OF THE PHRENIC NERVE

In order to embarrass the respiration still further, the phrenic nerve was crushed by the application of artery forceps The amplitude of the respiratory wave was reduced about one-half although the character and rate remained unchanged The slight pressor effect resulting in an increase of blood-pressure, averaging about 16 mm was obtained in most experiments This phenomenon was observed in both plus pressure-differential and insufflation methods of anesthesia

INCISION OF PERICARDIUM

The manipulation necessary for the incision of the pericardium manifests itself with perfectly typical cardiac inhibition which lasts as long as the irritation of the pericardium continues In all probability, this effect is due to direct mechanical cardiac stimulation through the pericardium, inasmuch as it differs in no way from the effect produced by touching or manipulating the heart itself Supporting this view is the absence of any reaction when the edges of the incised pericardium are picked up with forceps, provided the heart itself is not touched

Hurtel has recommended recently the preliminary cocainization of the pericardium in order to prevent the effects of local stimulation of the pericardium on the blood-pressure and respiration In my experiments, the respiration remained unaffected The phenomena observed were confined entirely to the blood-pressure and heart-rate The experiments carried out by the insufflation method yielded precisely similar results to those obtained by a plus pressure differential

TEMPORARY CARDIAC HEMOSTASIS

Sauerbruch has recommended the method of clamping the great vessels of the root of the heart between the fingers for temporary hemostasis during heart suture The physiologic effects of this procedure is shown by a sharp fall in the blood-pressure from 90 to 12 mm from which there is a prompt recovery on release of the constriction but the experiment is followed for a short time by a vagus type of pulse This characteristic of the pulse-wave is only transitory, however, although the recovery of the blood-pressure to its former height is not so prompt

THE EFFECT OF TRACTION SUTURES IN THE CARDIAC MUSCLE FOR TEMPORARY HEMOSTASIS

The application of traction sutures for the purpose of hemostasis during suture of the heart muscle is exactly the same as that observed in direct mechanical stimulation of the heart, which is followed by a temporary cardiac inhibition and fall in blood-pressure from both of which, there is, however, a prompt recovery

STABBING OF THE HEART AND HEART SUTURE

The stab wound of the heart shows precisely the same physiologic effect as direct mechanical stimulation of the myocardium, except that the reaction is somewhat more violent and the vagus type of the pulse persists This is, in all probability exaggerated by the tension of the two traction sutures during temporary hemostasis while the application of the stitches to the heart muscle itself is in progress During these manipulations there are frequent periods of cardiac inhibition and the vagus type of pulse increases respiration becomes slower and somewhat shallower The vagus character of the pulse persists for a considerable period, when the improvement in both the respiratory rate and blood-pressure is observed and both return to an approximately normal state It may be well to add that the wounds were large made sometimes near the auriculoventricular septum and at others near the apex, and required from six to eight sutures to close them They represent a severer traumatism than could often be survived in actual clinical experience The reaction following stabbing of the heart may result in a marked fall of the blood-pressure, which depends partly on the degree of traumatism and partly on the amount of blood lost before the hemostasis is obtained In general, the type of reaction obtained in these experiments must vary somewhat with the conditions, and depend partially on the degree of traumatism inflicted during the completion of the heart suture

These factors may delay, too the time when the cardiac musculature shows a symptomatic recovery from the injury which it has received Inasmuch as the number and nature of the stimuli applied to the heart during the suture of the wound vary more or less in each experiment, so the reaction, in one instance, may be much more marked than in another In general, however the conditions observed in the above experiment may be taken as typical although it should be noted that in each instance the wound of the heart and the subsequent suture were performed after the complete pneumectomy and crushing of one phrenic Under these circumstances, the response is probably somewhat more profound and the recovery somewhat less rapid than would be the case where the experiments are carried on without the preliminary pneumectomy

PACKING OFF LUNGS WITH GAUZE

In order to secure a good exposure of the heart and esophagus, it is often necessary to pack off the lungs with gauze or Mikulicz pads This procedure is followed by a temporary drop in the blood-pressure from which there is usually prompt recovery, although it takes some time before the adjustment is complete and the blood-pressure reaches its previous height During this period there is also a slowing of the respiration but the rate returns to normal with the restoration of the pressure

DISSECTION OF THE VAGI

In one experiment both vagi were dissected from the esophagus, preliminary to partial esophagectomy In this instance no effect was observed on the blood pressure heart-rate or respiration The dissection was carried out in the lower segment in the esophagus below the point where the pulmonary and cardiac plexuses were given off Similarly, separation of the diaphragm from the stomach and esophagus, when carefully carried out is without effect on respiration, heart rate or blood pressure

ACUTE PNEUMATIC DILATATION OF THE STOMACH

One of the untoward effects of the pressure differential methods observed on a few animal cases and in one or two instances on human beings either by the plus pressure method or the Sauerbruch cabinet has been a sudden dilatation of the stomach due to the relaxation of the pharyngeal musculature and a discrepancy in the pressure between the stomach and pharynx The accident has not infrequently occurred with the inauguration of insufflation when the catheter has been passed by mistake into the esophagus instead of the trachea In order to determine the effect of this condition on animals the stomach was inflated by plunging a trocar through the abdominal wall an[illegible] [illegible] one instance the [illegible] accompanied by respirations that were shallow and irregular in both force and rhythm As soon as the animal had adjusted itself to the new condition, the respirations were slowed and were followed by a period of rapid inspiration and prolonged expiration, probably due to the pressure of the stomach on the diaphragm The blood-pressure remained high throughout the experiment In another instance with the insufflation method, the reaction was by no means so marked so far as the blood-pressure was concerned, but there was a definite temporary embarrassment of the respiration from which the animal relieved itself by belching

The reactions of the medullary centers to operative traumatism as shown in these experiments suggest that we should be cautious in the treatment of the parietal pleura, particularly in tearing it at the angles of the intercostal wound by injudicious application of the rib-spreader The lungs may be handled freely, but manipulations that tend to transmit traction to the great vessels and bronchi at the root of the lung should be reduced to a minimum In heart suture, the Sauerbruch method of temporary hemostasis leads to too serious a fall in blood-pressure to be safe except where other means of hemostasis fail Any mechanical stimulation of the heart, either directly or through the pericardium, during suture should be avoided so far as possible Furthermore, in packing off the lungs to obtain an exposure of other thoracic viscera, it would be wise to avoid any unnecessary trauma which might tend to reduce the blood-pressure excessively These are the stimuli which, in the present set of experiments, have produced the most serious reactions

310 Temple Street

ACUTE POLIOMYELITIS, TRANSVERSE MYELITIS TYPE *

A. L SKOOG, M D
KANSAS CITY

We have given names to diseases according to the clinical phenomena exhibited, according to etiologic factors and according to anatomic localization or changes The title of this paper might be altered, have additional descriptive terms appended, or even shortened •

The object of preparing this paper is to place on record a case studied clinically and anatomically, a case of which I can find no counterpart after having searched diligently through the European and American literature

This report covers one of the most interesting of the many cases which I, in the capacity of special investigator for the Kansas State Board of Health during the past three seasons have had the opportunity of studying The patient was taken by the family physician, Dr Beach, of Clyde, Kan , on the sixth day of the illness to the University of Kansas Hospital at Rosedale where she was under my observation continuously until death, a period of three months

History—Patient F G schoolgirl, white, aged 13 Father and mother are in good health One sister, aged 15, well No brothers or sisters dead Patient's birth infancy and early childhood normal Measles at 5 No serious illness at any time Somewhat emotional and considered an affectionate child

Patient was in excellent health prior to date of onset On Nov 2, 1909, she complained of pain in left lumbar and pleural region On the following day the pain was general in the back, especially along the spine, and in the abdomen Both legs ached Headache was present These symptoms continued during the first four days The attending physician recorded a temperature of 100 F on first day of illness and 103 2 F on the third day The pulse ranged from 96 to 120 Respiratory rate was 24 There was no vomiting Constipation preceded and continued during the illness Retention of urine commenced on the third day of illness and required several catheterizations daily Motor and sensory paralysis was first noticed on third day after onset when the patient was awakened by a sensation of numbness in both feet which crept rapidly upward to lower chest The right and left side were equally involved A mild delirium was observed on the third, fourth and fifth days

Findings—My first examination was made on the sixth day of the patient's illness, at the time of admittance to the hospital Patient was well developed, pubescent Respiratory organs were normal, circulatory organs normal except increased rate of heart action Some abdominal tympany was present There was mild rigidity of recti abdominalis Urinary bladder was filled Liver and spleen were apparently not enlarged Tongue was coated Skin had several blebs on lower extremities and over pubis, accidents from local application of heat The mental state showed a little depression, but accurate, coherent replies were made to all questions Close examinations of all cranial nerves showed normal functions Motor power in the neck group and upper extremities was normal

There was an absolute flaccid paralysis of all muscles in the lower extremities, not a trace of movement being detected at hip, knee, ankle or toe joints The abdominal muscles showed much weakness There was complete retention of urine and feces All reflexes of head and upper extremities were normal No epigastric, abdominal, gluteal patellar or ankle reflexes could be elicited Plantar stimulation produced no response There was a complete sensory paralysis of the area supplied by the eighth dorsal cord segment and below there being absolutely no response to touch, cotton, pin pricks, thermal deep pressure or vibration stimuli in the lower extremities There was no true hyperalgesia or hyperesthesia from the seventh dorsal area upward but movements of the thorax involving all the upper dorsal vertebræ caused intense pain and patient preferred to be turned to right side Sense of position was entirely absent at toe , ankle and knee joints, but feebly present at hips, the right equal to the left

Course—The subsequent course of the case was one so frequently observed in severe paraplegic myelitis cases from any of the various causes in which the patient clings to life for weeks or months and finally succumbs to exhaustion with slowly increasing bed sores cystitis and other complications Emaciation and exhaustion reached an extreme degree and death occurred Feb 22, 1910, almost four months after the onset of the paralysis

Full mental faculties were retained until forty eight hours before the exitus when they became dulled with a rapidly oncoming coma The palsied state never showed any substantial improvement The muscles of the lower extremities remained functionless flaccid and became markedly atrophic A feeble right and left toe extension sign could be demonstrated in the third week but not two weeks later No change appeared in the findings as to deep reflexes A partial sense of position in toes ankles and hips but not at knees could be demonstrated in the second week but never after the fourth week The superficial sensations remained unchanged Trophic disturbances in the lower extremities developed early, and finally numerous large bed sores appeared, the sacral eroding into the neural canal Edema of the lower extremities was present during the last month There was continuous pyrexia, and temperature ranging between 100 and 104 F During the last few weeks of the illness there was recorded an irregular subnormal temperature It dropped to normal after each of the two venesections and returned on the following day A consultant diagnosed a cholecystitis in the fourth week, but an exploratory operation revealed no pathologic changes in the gall bladder tracts or neighboring viscera Although no anesthetic was administered, the patient was entirely unconscious of the operative manipulations excepting some visceral pain when traction was made on the liver

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* Read in the Section on Pathology and Physiology of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912

Laboratory Analyses—Rachicentesis at the third lumbar space was performed on the sixth day of the illness with no pain or consciousness of the operation Only about 1 c c of cerebrospinal fluid could be obtained on account of the difficulty in obtaining a flow It coagulated more rapidly than normal blood, the drops finally hanging at the external opening of the needle in the form of congealed globules The fluid was perfectly clear A microscopic examination showed a mild pleocytosis about 90 per cent lymphocytes Much coagulation fibrin was present No microorganisms were found Rachicentesis at the second, third fourth and fifth lumbar spaces on the ninth day gave no fluid each puncture I felt sure that the needle entered the lumbosacral cistern each time

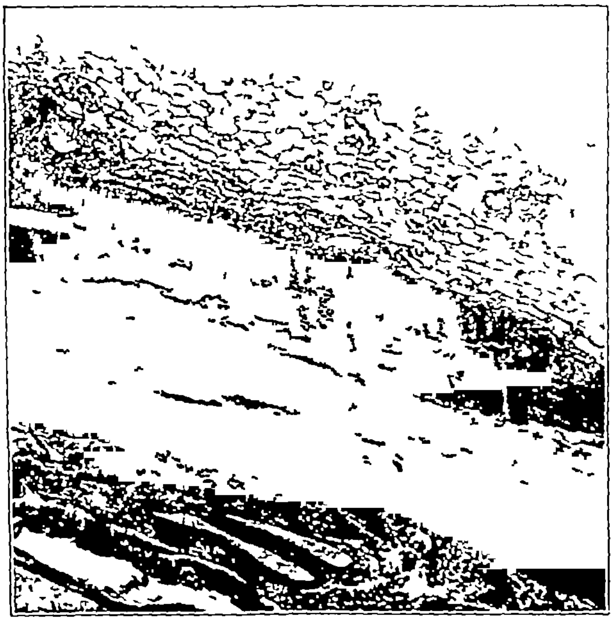

Fig 1—Section of cord and meninges at the ninth dorsal segment showing epidural fat adherent and thickened dura arachnoid and pia

A venesection was performed on the seventh day of the illness and 60 c c of blood withdrawn One guinea pig one rabbit and one rhesus monkey were inoculated with a few cubic centimeters of the blood by the intraperitoneal route All yielded negative results Seventy five c c of blood were removed on the eleventh day of the illness Bouillon cultures with blood gave negative results in each instance

A blood count on the seventh day gave a leukocytosis of 12 100 with 88 5 per cent polymorphonuclears and 5 5 per cent lymphocytes Ten days later the leukocyte count was normal A Widal test on the tenth day gave a negative result

Urinalysis on the sixth day gave acid reaction specific gravity 1 017 no albumin sugar or indican few hyaline and granular casts red corpuscles some leukocytes and long motile bacilli Later analyses showed continued cystitis

Autopsy—The post mortem was performed two hours after death There was no rigidity Great emaciation and enormous sacral and trochanteric bed-sores were present also lesser sores over bony prominences of feet knees and scapulae There was some edema in the lower extremities and lumbar muscles no serious changes in organs of chest or abdomen except evidence of wasting The gall bladder operative wound had healed nicely On opening the skull the dura appeared normal There was a little excess of fluid in the subdural and arachnoidean spaces Some retraction of brain was seen The convolutions appeared normal All the ventricles were normal The spinal cord dura appeared normal above the seventh dorsal segment The dura arachnoid pia and cord were closely adherent obliterating all spaces from the seventh dorsal segment to the first lumbar (Fig 1) No fluid was present The meninges were three or four times thicker than in the normal The cord to the naked eye showed nothing abnormal above the seventh dorsal segment It was diminished in size from constriction at the seventh and eighth dorsal segments The lower five dorsal and lumbar segments had several cylindrical microscopic cavities extending up and down in the white and gray tissue Especially do they appear in the posterior columns (Fig 2) In the last two sacral and coccygeal segments appeared a softening which gave a *Staphylococcus aureus* culture No bacteria were found in the cord above this area

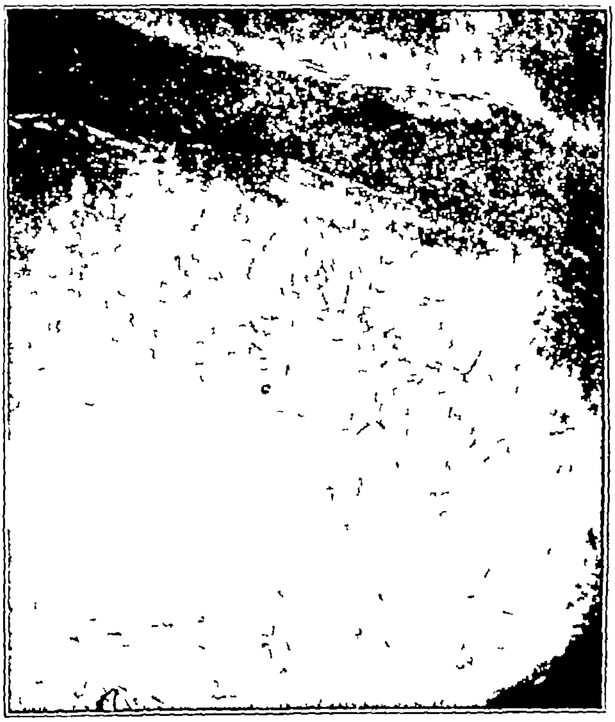

Fig 2—Section at ninth dorsal segment showing a large cavity in region of posterior column canalis centralis and thickened meninges

The cord was hardened and fixed in alcohol and sections from each segment stained by the Nissl picrofuchsin and hematoxylon methods for microscopic studies The meninges of the lower dorsal segments presented the same sclerosed or hypertrophic appearance under the microscope as seen macroscopically There was no infiltration of the pia and arachnoid Above the seventh dorsal segment no marked minute changes were observed outside of ascending secondary tract degenerations Some of the anterior horn cells in the cervical enlargement showed mild degenerative changes From the eighth dorsal segment to the third sacral were seen all kinds of degenerative changes in the anterior horn cells In a few of the segments all cells were present but only a few were normal Studying cells from various segments revealed axonal degeneration tigrolysis in various stages [illegible] of nucleus various forms of nuclear displacement and vacuole formations (Figs 3 and 4) Often a fragment of a nucleus or trace of a motor cell could be seen [illegible] [illegible] erations of the smaller cells of the anterior horn Clarke's column group of cells [illegible] posterior and lateral [illegible] erations in all the tracts from the seventh dorsal segment downward Diffusely scattered through the columns were observed microscopic cavities Surrounding these cavities as well as the macroscopic ones there was no indication of inflammatory reaction to be seen As in the gray substance there were seen no leukocytic infiltrations or connective tissue overgrowth All the blood vessels present in both the gray and white substance appeared to have normal walls and had no infiltrations

Diagnostic Remarks—During the early period of the illness, with considerable caution, a diagnosis of acute epidemic poliomyelitis with a transverse myelitis was made The subsequent course of the case and the autopsy only added support to this diagnosis The findings from the two lumbar punctures indicated the adhesions of the meninges in the dorsal cord The coagulation of the cerebrospinal fluid has been observed in a few exceptional cases of undoubted acute poliomyelitis. Otherwise the cytology of the spinal fluid was quite characteristic It was certainly not characteristic of any purulent infection The laboratory work with the blood indicated no bacteriemia The continued fever was probably a result of trophic disturbance and a cystitis Urinary retention or incontinence is very infrequent in acute poliomyelitis, but would be expected in any case of complete transverse myelitis from any of the numerous causes There are some undoubted cases of acute poliomyelitis reported with paralysis of the sphincters Likewise severe sensory disturbances are rare in acute poliomyelitis Hyperesthesias and paresthesias are not infrequent I have reported[1] one case of spinal poliomyelitis in which there was diminished sensation in the paralyzed member and a return of normal sensation within a few weeks *In support* of the often observed fact that patients rarely die of their original disease this case is an illustration in which the patient probably succumbed to several sequelæ which also were the cause of the most striking clinical phenomena The mode of development of the thickened meninges cannot be stated There are a number of causes given for hypertrophic meninges but some remain unexplained I am inclined to believe that the overgrowth followed a severe edema and inflammatory process of the lower dorsal meninges The thickened meninges were probably responsible for much of the myelomalacia

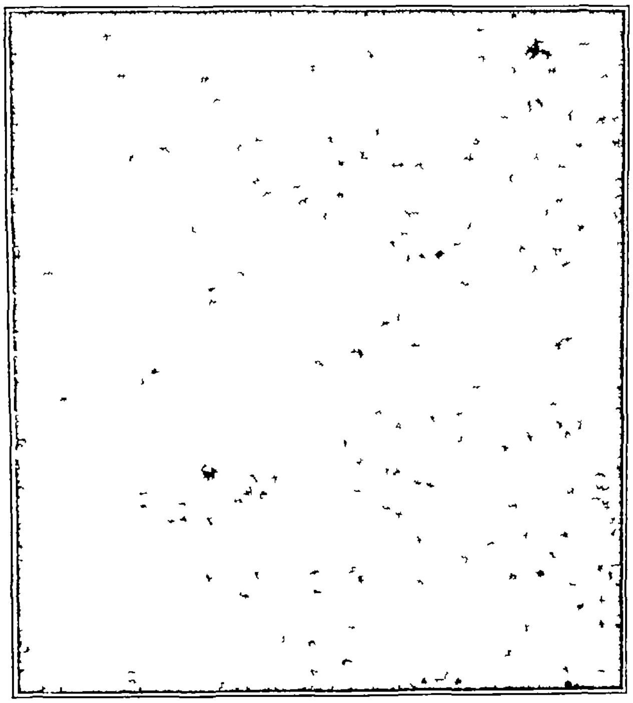

Fig 3.—Three anterior horn cells from lumbar cord with complete tigrolysis The upper and lower cells contain vacuoles

It is very evident that we have a transverse myelitis to deal with, but transverse myelitis type of acute epidemic poliomyelitis (with apologies to our rather inaccurate nomenclature) is exceptiona , and particularly so severe and definite a case Reviewing the history of acute poliomyelitis from the time of our earliest definite knowledge of the pathology by Cornil and Charcot, in 1864, and Vulpian and Prevost, in 1866, we have had added from time to time different types of acute poliomyelitis until we now have quite a number Most of these types are named by their localization as encephalic, bulbar, spinal, polyneuritic, meningitic, ascending, etc

I have reviewed extensively the literature of acute poliomyelitis and transverse myelitis for cases that might be akin to the one which I am reporting Harbitz and Scheel[3,4] report a case of transverse myelitis with autopsy, but indicate some uncertainty about diagnosing acute epidemic poliomyelitis of the transverse myelitis type Strauss[5] reports an illustration of edema and marked softening of the central nervous tissue in a fatal case of acute poliomyelitis The cases of transverse myelitis with flaccid paralysis are infrequent Cases in which a transverse myelitis has appeared with a more or less sudden onset, with a flaccid paralysis, and in which acute poliomyelitis has been considered in a differential diagnosis, or in which the etiologic factors have been uncertain or hazy or in which no conclusions were made regarding the true cause are reported by Nageotte[6] Evans[7] Pilger,[8] Thompson,[9] Spear,[10]

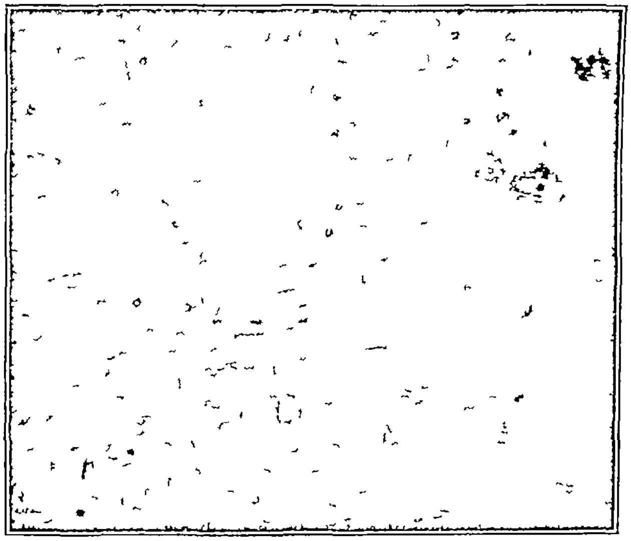

Fig 4—Four anterior horn cells from lumbar cord showing marked chromatolysis axonal degeneration and nuclear displacement

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[1] Skoog Three Cases of Acute Poliomyelitis in Same Family at Same Time Med. Herald St. Joseph October 1911

[2] Medin Nord med Ark 1890 No 1

[3] Harbitz and Scheel Pathologisch anatomische Untersuchungen über akute Poliomyelitis und verwandte Krankheiten Christiania 1907 p 162

[4] Harbitz and Scheel The Journal A M A Oct 26 1907 p 1420

[5] Strauss *Epidemic Poliomyelitis Rep of Col Inv Com on N Y Epid. of 1907* N Y 1910 p 78

[6] Nageotte Deux cas de myelite transverse aigue Nouv Iconog de la Salpetriere 1895 viii 325

[7] Evans Case of Acute Transverse Myelitis Post Mortem Examination Lancet London 1894 ii 683

[8] Pilger Ueber einen Fall von genuiner Myelitis transversalis Inaug Thesis Berlin July 26 1898

[9] Thompson *Transverse Myelitis Railway Surg* 1901 1902 viii 130

[10] Spear Report of a Case of Transverse Myelitis in Woman Five Months Pregnant Followed by Very Easy Labor, Hosp Bull Univ Maryland 1908 iv 363

Frohmann,[11] Nogues and Sirol,[12] Ferrori[13] and Burr.[14] Brissaud[15] has reported a case of transverse myelitis with syphilis as a cause in which the paraplegia was spastic at first and became flaccid in three or four months. Primangeli[16] reports a clinical case of acute transverse myelitis appearing on the seventh day of illness in a case of measles in which there was a severe flaccid paraplegia. Williams[17] has reported a case of transverse myelitis at the first lumbar level with acute poliomyelitis as a stated cause. Evans[7] ascribes the cause in his case as due to influenza. Having reviewed the clinical and autopsy report I favor very much the diagnosis of acute poliomyelitis. Pilger[8] considers poliomyelitis in the differential diagnosis of his reported case but finally concludes that the cause was "spontaneous." He mentions among the causes for myelitis syphilis, tuberculosis, acute infections as small pox, typhoid, etc., chilling, wetting, excesses, trauma and concussion.

CONCLUSIONS

It is not within the province of this article to enter into a lengthy discussion of the nomenclature, but I wish briefly to emphasize my choice, which is based on pathologic findings. Among the various terms applied to the disease during the past seventy years, none is more applicable than acute poliomyelitis, or possibly acute epidemic poliomyelitis might be used. The former can be employed at least until the organism has been discovered and probably even then continued. We have learned much about the nature of the virus during the past two years through the work of Landsteiner and Popper,[18] Flexner and Lewis[19] and a number of other investigators. It remains a fact that in a high percentage of cases of acute poliomyelitis the greatest pathologic alterations occur in the anterior horns of the lumbosacral and cervical swellings of the spinal cord and from this the most striking clinical manifestations appear, namely, the sudden, flaccid motor paralyses. In cases in which we wish to designate some particular type, additional descriptive terms used in this paper and elsewhere may be employed in our titles.

Rialto Building.

THE SPINAL CORD IN PERNICIOUS ANEMIA

WITH THE REPORT OF AN INTERESTING CASE OF FAMILY INVOLVEMENT *

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PHILADELPHIA

The clinical picture of pernicious anemia and the microscopic findings in the blood are so thoroughly understood at present that they may be passed over without comment even in a discussion of the changes found in the spinal cord in this symptom-complex rather than disease. It is well, however, to remember that there do exist spinal cord and perhaps brain changes in every case of true pernicious anemia and that many cases that fail of prompt recognition, owing to nervous symptoms, would at once become clear if this fact were kept in mind. The likelihood that both the clinical picture and the cord degeneration are secondary to and the direct result of a definite toxemia has also occurred to and been hinted at by many investigators. Yet up to to-day the nature and source of this toxin and its method of action are still matters of speculation and even its avenue of approach and of attack are still to be determined.

Lichtheim,[1] in 1887, Putnam[2] and Dana[3] in 1891 and in 1899 and later Pickett,[4] Burr,[5] Spiller Camac,[6] and in the last months, Camp[7] have all described the combined sclerosis and degeneration of the cord which have come to be well recognized features in not a few instances of pernicious anemia. Spiller has shown that at least, occasionally, the degenerative process extends into the brain axis, Pickett[4] and much later Marcus[8] (1903), and in the current year Camp[7] have described cases of pernicious anemia in which there became prominent the mental picture and the signs of paresis. There has not yet been reported, however, a case which has suggested so definitely as does that which forms the basis of this brief study the likelihood of a direct causal relation between the intestinal tract and both the peculiar anemic state and the degenerative process in the spinal cord.

The spinal cord lesions of pernicious anemia as already repeatedly demonstrated consist of a combined sclerosis of the posterior and lateral columns. Occasionally the posterior columns are alone affected and there attends a definite clinical picture of tabes dorsalis. The lateral columns never constitute the only field of involvement. There is little tendency to implication of the gray matter or of the nerve-roots, or to contraction and shrinking of the cord such as are seen in true tabes. Hemorrhages are frequently in evidence and also processes that can perhaps best be explained on the basis of thrombosis of the spinal vessels. Usually the degeneration appears to start in the upper dorsal or in the lower cervical cord, the posterior columns sustaining the earliest and most severe attack. In my case the lumbar cord showed the most marked evidence of disease (Fig. 1). The lateral columns in most cases are also sooner or later involved, and later in the course of the intoxication the anterior horns show both clinical and microscopic signs of disease. There is more or less proliferation of the neuroglia with rarefaction of the nerve fibers and often a complete dropping out of the latter. The cells in the gray matter may show degenerative change and may be pigmented. Camac and others have described cavity formation in the cord probably due to edematous softening and consequent degeneration. In Camac's case the cavity corresponded accurately to the distribution of a branch of the anterior spinal artery, and apparently a thrombosis in one of the small veins was the original cause of the excavation. In a word it may be said that the pathologic process consists of a degenerative vacuolization of the nerve cell, accompanied or rather succeeded by a replacement gliosis

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[11] Frohmann Ueber einen Fall von Myelitis Transversa mit Muskelwogen und eigentümlichen Veränderungen der elektrischen Reaktion Deutsch Arch f klin Med 1905-6 lxxxvi [illegible]

[12] Nogues and Sirol Myelite transverse avec paraplegie flasque d'emblee Gaz hebd de med 1899 iv 601

[13] Ferrori Di una mielite transversa acuta dorsale inferiore e dei suoi postumi Riv Ven di sc med 1896 xxv [illegible]

[14] Burr Acute Transverse Myelitis Med Bull Philadelphia 1896 xviii 401

[15] Brissaud Myelite transverse et paraplegie flaccide Rev neurol 1898 vi [illegible]

[16] Primangeli Un caso di mielite lombare transversa consecutiva a morbillo Poli Ital [illegible] Rom 1906 xiii 1161

[17] Williams Transverse Myelitis at the First Lumbar Level, Louisville Month Jour Med and Surg Oct 18 1911

[18] Landsteiner and Popper Ztschr f Immunitätsforsch 1909 ii 377

[19] Flexner and Lewis The Journal A M A Nov 13 1909 p 1639

* Read before the American Association of Pathologists and Bacteriologists, April 5 1912.

[1] Lichtheim Zur Kenntnis der perniciösen Anämie [illegible] Münchener med Wchnschr 1887 xxxiv [illegible]

[2] Putnam Jour Nerv and Ment Dis 1891 xviii [illegible]

[3] Dana New York Med Jour 1891 liii [illegible] Jour Nerv and Ment Nerv Dis 1899 xxvi 1

[4] Pickett M[illegible] cxxviii

[5] Burr Univ [illegible]

[6] Camac and [illegible]

[7] Camp M[illegible]

[8] Marcus [illegible]

A considerable number of cases have been reported in which the anterior horns were involved to such an extent that the clinical amyotrophic result was confused with emaciation and obscured the diagnosis This is an occurrence of the late stages of the intoxication, however, and in view of our present information it would seem as though this confusion should no longer be necessary even though the blood-picture may not yet have assumed the definite character of pernicious anemia and of pseudocombined sclerosis (Fig 2)

The case which forms the subject of this paper is of interest from more than one direction

Family History—The patient A C W was a single woman 43 years of age Her family history was very striking, and was in brief, as follows Her father died at 60 years He had suffered from "asthma" dropsy and 'had a stroke" The picture is at least suggestive of a uremia He had also had hemorrhages from the bowel, though not recently before his death The patient's mother is alive at 79, and has aortic insufficiency with cirrhosis of the liver One of the patient's aunts on the mother's side had hepatic trouble, and suffered from angina pectoris and Bright's disease Another aunt on the same side died of pernicious anemia Jan 17, 1907, her blood record was as follows red corpuscles 955,000, leukocytes, 3,000 per c mm, hemoglobin 32 per cent, color index, 1 77 A number of megaloblasts and a few normoblasts were noted A brother of the mother died at 68 from mental trouble One sister died a year ago from tabes in a grave anemia (seen by me) Two of the patient's brothers are living, *but are invalids* One of these shows a marked atrophy of the muscles of the right side consequent on early anterior poliomyelitis also some renal and bladder involvement This brother has had glaucoma of one eye and was operated on for this condition ten years ago Another brother has kidney disease with "puffing under the eyes"

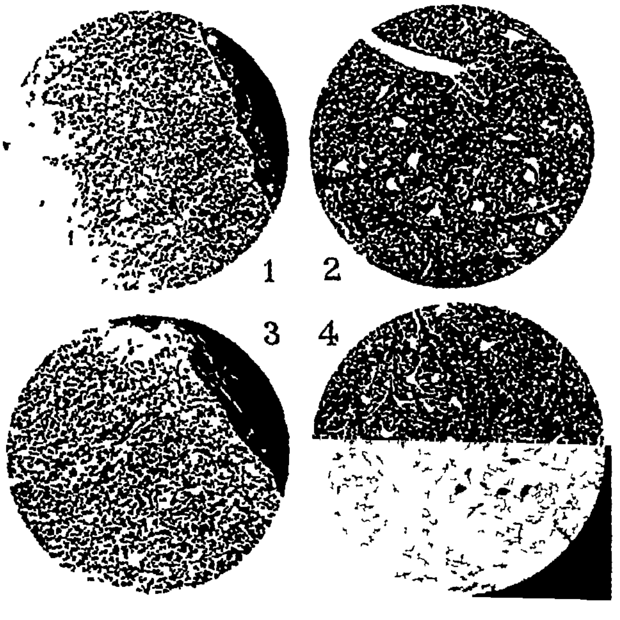

Fig 1—Author's case of pernicious anemia Cross section of lumbar cord showing marked evidence of disease of the posterior columns

Fig 2—Cross section of lumbar cord showing involvement of the anterior horns.

Fig 3—Cross section of upper thoracic cord showing degenerative changes in the white matter

Fig 4—Cross section of upper thoracic cord showing degenerated cells in anterior horns

Previous History—The earliest record obtainable of the patient indicated normal health up to the sixteenth year, after which she showed a marked tendency to severe colds She had two attacks of congestion of the kidneys between the nineteenth and twenty ninth years, and suffered a pleurisy also during this period The severe colds in the head and throat have continued up to the present time, and have always been accompanied by indigestion, which has gradually developed into the severe mucous enteritis that preceded the patient's death Her *menstruation was always irregular in time and quantity* In 1911 the patient was taken to the West Philadelphia Hospital for Women for an intestinal attack with eructations of gas and with considerable abdominal tenderness In October, 1911, she experienced severe pain under the right breast increased by pressure over the gall bladder This attack began with eructations of gas, lasting for hours

Through the courtesy of the institution and of Dr Williams I am able to present the notes of her illness at that time In January 1911, she had menstruated very profusely, then again in March, in June, July and August, but not after that time In February she had considerable bleeding from the bowel, with intense soreness over the abdomen She also suffered much *from cardiac arhythmia and palpitation, both evident to her*self While in the hospital she had much nausea and gastric distress which were relieved at times for a day or two, but returned in sudden and acute attacks During these attacks the *face was flushed and the pupils unequal Most of the* time the pupils were markedly contracted Following the excitement of such an attack the temperature rose, but was usually normal Pelvic examination was negative Abdominal examination *showed ptosis of the stomach and intestines* with areas of tenderness on palpation about the umbilicus and over the gall bladder The heart and lungs were normal The red corpuscles numbered 6,500 000, and the leukocytes, *15,000 The feces showed much mucus, but no occult blood*

An examination of her eyes by Dr Stratton in 1901 showed right eye, media clear, bright reflex from vessels, deep central physiologic cup, and the edges of the nerve hazy, left eye, *media clear nerve* head hyperemic, otherwise same as the right eye In 1909, muscular insufficiency, both vertical and lateral, refraction findings and vision practically the same as in 1901

Current History—The patient was first seen by me in consultation with Dr R R Williams on Dec 21, 1911 She had for a year been suffering from gradually increasing disability and discomfort in the form of weakness and lightning pains in the extremities, in addition to her long standing *gastro intestinal* trouble She had also been experiencing, with increasing frequency, severe gastric crises, comprising pain, nausea and vomiting A constricting girdle pain was described by the patient herself as severe about the level of the ensiform *cartilage* There was a frequent and copious eructation of gas and considerable blood was passed at times from the bowel During the last weeks an increasing and finally a very marked pigmentation of the skin was noticed until the entire body was dark brown, while over the abdomen especially around the umbilicus there was an area almost black in color Over the buttocks and the posterior surfaces of the upper arms and of the elbows there was a similar intense pigmentation There was no emaciation The patient could stand, but would fall at once when the eyes were closed She complained bitterly of intense tingling and pain in the extremities, especially in the hands and fingers, and described an aura of this type preceding the gastric crises During the last ten days of her life large hemorrhagic blotches appeared on the elbows and over the knuckles of both hands These rapidly changed to hemorrhagic blebs, which soon ruptured leaving extensive ulcerations in their place

Examination—The mucous membranes were blanched and extremely anemic, and here and there over the buccal mucous membrane were patches of brown pigmentation *There was no* jaundice Pressure over the sternum and long bones elicited marked tenderness Both pupils were very small and completely fixed There was no reaction to light, and a very slight *response to distance accommodation* Both patellar reflexes were completely absent as were also the Achilles tendon and the plantar reflexes Babinski's reflex was not present on either side The finer acts of accommodation and coordination were all embarrassed *and imperfect* While being *examined the* patient had several attacks of severe pain, mainly in the lower limbs, undoubtedly lightning pains There were areas of moderate hyperesthesia, as well as less extensive areas of complete anesthesia scattered over the body The heart and lungs appeared normal, except for indicating a general debility The abdominal organs including the liver, spleen, appendix, uterus and adnexa showed no abnormality on palpation The abdomen was generally sensitive, but presented no localized area of involvement The urine contained a small quantity of albumin and a few hyaline and hyalogranular casts The feces contained much blood, mucus and undigested food but no parasites or ova The blood examination gave hemoglobin, 50 per cent , red blood cells, 3,060,000, leukocytes, 8,000 There were considerable poikilocytosis and polychromatophilia and occasional nucleated red cells, mainly normoblasts were found

Autopsy—The body was examined Jan 8, 1912, the day following the death of the patient The skin and mucous membranes were found pigmented, as already described, also the large sloughing areas over the elbows and knuckles which had taken the place of the hemorrhagic bullæ were still present In the thorax, the only organ that presented any special abnormality was the heart, which was small, very flabby with an evident insufficiency of all its valves Just outside the aortic ring also around the opening of the right coronary artery and over the surface of the left auricle, were patches of atheromatous deposit In the wall of the left auricle and in the posterior cusp of the mitral valve were two atheromatous and calcified nodules The abdominal organs were all intensely anemic and showed the changes characteristic of pernicious anemia In the kidneys were evident many distended and injected vessels The adrenals appeared merely anemic The intestines showed an extensive inflammatory process with considerable erosion of the duodenum The colon was eroded from the cecum to the anus and in places there were found areas of shallow ulceration The stomach was dilated, its mucous membrane considerably injected, its muscular wall very thin, but there was no ulceration present The brain showed no abnormality The dorsal, lumbar and sacral portions of the spinal cord were removed

Microscopic Examination—Dr William G Spiller, who very kindly examined the sections for and with me, coincides in the following report on the spinal cord involvement Sections were examined from various portions below the cervical region, including the dorsal, lumbar and sacral segments Degenerative changes were found throughout the white columns. These resulted in a dropping out of nerve-fibers leaving numerous holes in place of the fibers which had disappeared This resulted in the characteristic lace-work appearance which is so beautifully shown in Figure 3 There was very little proliferation of neuroglial tissue There was approximately a similar and equal involvement of the posterior and lateral columns The nerve cells of the anterior horns of the lumbar region were considerably affected Many were swollen and in many others pronounced chromatolysis had occurred The degenerative changes were those which are usually seen in the tissues of the spinal cord in pernicious anemia

The foregoing history and autopsy protocol present especial interest from the standpoint of the possibility of establishing a definite etiology for the clinical symptoms and for the pathologic lesions as found during life and later under the microscope Unfortunately the patient was not suspected of developing either pernicious anemia or pseudocombined sclerosis at a stage of the disease at which there may have been present spastic symptoms (at least exaggerated reflexes) and at which she might have suggested the presence of involvement of the lateral columns The spinal picture from the time it came under my notice was definitely one of posterior column involvement plus during the last days of life, involvement of the anterior horns with suggestive trophic changes

Very striking however, is the clinical indication of a pathologic intestinal process dating back to childhood and terminating only in the gastric crises which indicated perhaps the final influence of the auto-intoxication on the spinal cord In a previous clinical communication I called attention to the symptoms of intestinal decomposition and auto-intoxication comprising just such a series of colds as that which the patient under consideration presented during her entire lifetime In view of her entire freedom from involvement of the respiratory apparatus, as evidenced both by the physical examination and by the autopsy findings there would seem to be little room for doubt that this patient had suffered for many years from a toxemia metabolic in origin and that the gastro-intestinal tract had been its manufactory It seems evident that this toxemia led up to, even if not finally demonstrated as being the direct cause of the pernicious anemia of the spinal cord degeneration and sclerosis and of the fatal termination of the case

Of no slight interest moreover is the series of instances in the patient's near and immediate family connection of pathologic clinical pictures which suggested not only a definite relation between the pernicious anemia and combined sclerosis of this case and the father's arteriosclerosis and uremic "stroke" the mother's aortic insufficiency and hepatic cirrhosis with the renal sclerosis and angina pectoris of one aunt and the pernicious anemia of another to say nothing of the death of a third aunt (all three sisters of the mother) in an advanced stage of locomotor ataxia A brother of the mother died of "mental trouble" the exact nature of which could not be determined It does not seem at all unfair to consider the possibility if not the probability of a hereditary luetic influence running throughout this long series of circulatory and nervous involvements (Fig 4)

Especially in that type of case in which the picture of locomotor ataxia has been prominent or in which the mental phase of paresis has been definite and prominent there have been many recent attempts to demonstrate the syphilitic origin of pernicious anemia As in the case reported by Camp, however both the negative Wassermann test, the negative findings in the cerebrospinal fluid, and the absence of the Argyll Robertson pupil in many instances argue against a positive statement in this direction C W Field has recently informed me of four cases of pernicious anemia studied by him of which one furnished a positive Wassermann reaction and three reacted negatively He also writes of 'seven cases of grave secondary anemia which from their blood-picture resembled pernicious anemia very closely Two of these gave positive reactions and both patients admitted having contracted the disease some years before In the five negative cases the patients denied a syphilitic history and showed no signs of syphilis"

A history such as that submitted to-day together with microscopic findings of the character noted in the sections of the cord now submitted cannot fail to indicate the strong possibility and perhaps the probability of the intestinal origin of not only pernicious anemia but of the pseudocombined spinal sclerosis Berger and Tsuchiya[9] have apparently shown that in pernicious anemia there is in the intestinal mucosa a lipoid ten times more powerful as a hemolysin than the lipoid from the normal mucosa This has not been shown however to have any influence on the spinal cord The relation of true tabes dorsalis to syphilis is too well understood to require any comment here. The working of syphilis through the gastro-intestinal tract and its influence on the blood and on the spinal cord through a gastro-intestinal autotoxemia, have not been so thoroughly considered, and this theory is offered not without a certain measure of plausibility in the case under study. It is satisfactory, at least, in meeting the requirements of this individual case in which from childhood there were present signs of gastro-intestinal disability. The deep pigmentation is interesting from one standpoint only, that of its severe degree. Pigmentation is so common in pernicious anemia that ordinarily it calls for no comment especially in cases that have been treated with arsenic. The hemorrhagic bullæ on the knuckles and elbows and the subsequent open ulcers were unusual, and apparently combined the customary tendency to hemorrhage with distinct trophic change. It would seem as though the case were almost certainly one of pernicious anemia, perhaps due to hereditary lues, and that the somewhat similar cases in two of the patient's maternal aunts were in close relation and to be attributed to the same etiology.

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[9] Berger and [illegible] p [illegible]

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DIFFICULT AND DANGEROUS LABORS

SELECTING THE METHOD OF DELIVERY *

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We have but recently entered a new era in obstetrics, disregarding the traditions and prejudices of the past according to which the infant was in every case sacrificed whenever in its unaided efforts to be born it in any way conflicted with the maternal well-being.

In the present era we maintain that those who practice obstetrics must keep in mind that the primary purpose of conception is reproduction, and that obstetrics is successful only when we deliver a live, healthy child from an unmutilated mother. The progress has been along surgical lines and the technic of the different procedures has been fairly well outlined, but as yet we have been unable to define distinctly the fields belonging to craniotomy, axis traction, forceps on the floating head, pubiotomy, vaginal cesarean section and abdominal cesarean section.

Regardless of the surgical progress which obstetrics has made, we cannot forget that the most important indication in obstetrics is to interfere only when the mother or child is in danger.

Speaking of craniotomy, I will pass it possibly too briefly and perhaps in a dogmatic way, by stating that it has no place in obstetrics except when the fetus is dead or when the traumatism prior to having been seen by the obstetrician has been so severe that a living child cannot be secured. Under these circumstances the child's welfare is ignored and we consider only the fact that it offers, in the infected cases, a lower maternal mortality. If we add to this the few cases in which deformities exist (hydrocephalic heads, monsters, etc.) it would seem that we have fully covered the field for this procedure.

In defining the fields for high forceps on the floating head or when the head engages in the superior strait, pubiotomy, vaginal cesarean section and cesarean section, we must at the beginning consider the personal equation of the operator, his familiarity with the different methods of procedure, and the following factors which at present can only be partially estimated: (1) an absolutely accurate pelvic measurement; (2) an absolutely accurate measurement of the fetal head; (3) an accurate idea of the degree of molding of which the particular head is capable; (4) an accurate estimate of force required; (5) an accurate estimate of the expulsive powers of the mother; (6) an accurate estimate of the possible duration of the expulsive forces.

All of the above factors enter into the progress of a normal labor, and as they vary from normal in degree, so will the progress of labor become complicated by vicious mechanism, extension of the head, prolapse of the cord, injuries of the soft part by tears on account of rapid extraction or sloughing of the parts from prolonged pressure and injuries to the bony pelvis such as separation of the symphysis or traumatic injuries to the sacro-iliac joint.

The diagnosis of contracted pelvis is not difficult and the greater the deformity the easier the diagnosis, but in a moderate degree of pelvic contraction it is difficult to recognize or appreciate the degree of malformation and the influence it will have on labor. Even though much progress has been made in estimating the pelvic capacity in the living subject, we must still acknowledge that our present means are defective, as by neither the hand nor the pelvimeter can we accurately measure the pelvis, and the more frequently we are put to the test the more ready we are to acknowledge our shortcomings in this respect, and to admit that at best we get but a general impression of the pelvic capacity. Perhaps I am even safe in saying that without regard to the skill of the obstetrician or the opportunity afforded, we can rarely rely on the accuracy of the measurements within a half centimeter. It is folly to pretend that it is always possible to tell just how the fetal head will fit the maternal bony pelvis, and again we must admit that difficult as it is to measure the pelvis, it is much more difficult to measure the head *in utero* and it is only after considerable experience that we can even tell if the head is large or small, and prior to the test of labor, the amount of molding possible is a matter of pure speculation.

It is a matter of great importance to separate those patients on whom cesarean section should be done from those patients on whom we can expect a safe delivery through the birth canal. This distinction is readily made in the absolute indication or cases in which the true conjugate is 7.5 cm. or below, but in cases in which the conjugate is between 8 and 10 cm., our knowledge of the subject is not developed to such an extent that doubtful or transitional cases will not remain. Probably our best method of getting this information is the bimanual method of grasping the fetal head in the paw-like grip while the other hand is introduced into the vagina to feel all around the head and see how it is engaging, noting whether or not it overrides the symphysis pubis and, if so, to what degree. After examination, if all of these factors have proved satisfactory, we have reason to believe that with normal expulsive power on the part of the mother and an average duration of labor, we can ultimately expect a successful outcome. It is, however, this estimate of the relative size that should form the basis of treatment.

It is important that we lay stress on the normal expulsive powers and remember that labor is a test of the muscular power of the patient in combination with her ability to endure pain without severe exhaustion

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Reynolds has so clearly pointed out that pregnancy precedes labor and that pregnancy itself has applied the primary test to all the organs concerned in labor that is, muscles, heart, nervous system and organs of elimination that a careful observation of our patient beforehand should largely separate the two principal classes, the first class being a woman who is physically unfit for the strain of pregnancy and labor This class is usually, but not necessarily, among the well-to do—those who are carefully guarded from infancy against all suffering or even muscular exertion and are intolerant of delay, irritable and possibly present a history of previous nervous exhaustion On the other hand, we encounter individuals who in a general way look very much as these patients may look, but they are thin, strong, wiry individuals and capable of a surprising endurance

In the two types of cases the relatively different condition will necessitate diametrically opposite procedures for delivery The patient of the first type becomes readily exhausted, intolerant of pain, labor pains soon become more or less continuous, the patient refusing to use them to the best advantage, ultimately necessitating a cesarean section to produce a satisfactory result, even in slight degrees of pelvic contraction The patient of the second type tolerates the pains well, using them judiciously, and conserves her energy in every possible way, with that endurance and determination which will force through the pelvis many a head that would otherwise stay above the superior strait These types of women offer a very marked contrast The latter uses judiciously every possible ounce of force in her body, while the former, becoming intolerant of her pain, irritable and restless, soon develops a marked lack of muscular tone and a power quite insufficient to expel an average-sized child through a normal pelvis After labor lasting sufficiently long to terminate the first stage, the pains become inefficient and labor makes no progress at all It is in this position that we frequently find ourselves and we must then determine which procedure will give us the best result, we must select between high-forceps operation, if the os is dilated, on either the floating head or a head that is engaged in the superior strait, version, cesarean section or pubiotomy

I am firmly convinced that the infantile mortality of high-forceps operation will improve but slightly, as it necessarily ignores either the maternal pelvis or the child's head in the method of application That is, we must select between a cephalic application or a pelvic application of the forceps, accepting the usual maternal morbidity and mortality with its appalling infantile mortality, while as an alternative we may do a cesarean section, pubiotomy or version

Considering the expulsive power of the mother, you must take into consideration the general muscular tone of the patient and the ability of the heart and the vital organs to stand the test of strength applied during her pregnancy This probably is best done by having the patient regularly and systematically take exercise, increasing this up to a reasonable degree remembering, however, that muscular tone is not brought about in a day or even in the length of time which our patients are ordinarily under observation, and that a uterus that has not functionated until well along in the child-bearing period of the mother cannot and will not develop the strength that we would expect in a younger patient In other words in an elderly primipara we have to deal with a senile uterus the energy of which is greatly reduced by the age of the patient and in this class the uterus soon shows signs of exhaustion, and even in cases in which we have to deal with a child of average size and a pelvis of normal measurements, we may find ourselves with an exhausted patient, an undilated os and an unengaged head necessitating the election of some surgical method of delivery

Kerr has shown by an analysis of fifty-three cases in the Glasgow Maternity Hospital, in which the conjugate was between 8 1 cm and 9 1 cm that all were capable of spontaneous delivery with two fetal deaths, one due to prolapse of the cord and one death the second day the cause of which is not given This corresponds with my own experience in having two patients who spontaneously delivered themselves with a conjugate vera of 7 5 cm with a flat type of pelvis The weight of the children was 2,600 gm and 3,080 gm Both patients were young in the working class, tolerant of pain and stood the second stage of labor lasting about nine hours with but little complaint In these cases but two vaginal examinations were made, as we aimed to give them the test of labor without also testing the number of virulent bacteria which could be introduced into the birth canal and the patient live We had anticipated a cesarean section, but remembering the words of Barbour, "The fetal head is the best pelvimeter," our hesitation to interfere until the maternal or fetal conditions demanded it saved the patient what would have been an unnecessary operation If, however, either of these two patients had presented in the superior strait in the occipital posterior position flexion either more or less than was required for engagement, the size of the head greater than was anticipated or molding less than was required, a cesarean section could and would have been done as soon as it was determined that the head could not be made to engage in the superior strait and without any increased danger to the mother

On the other hand, with a perfectly normal pelvis at times our best results will be secured by cesarean section

CASE 1—In case of Mrs S aged 38, water ruptured Sunday evening, there was slight pain one hour afterward, which continued Sunday night, Monday night and Tuesday and final examination on Tuesday at 10 p m, maternal temperature 100 2, pulse 110 Patient's condition was somewhat exhausted there was continuous pain, it was not possible to determine Bandall's contraction ring on account of the thick fat abdominal wall, the child's head floating free above the superior strait cervix thin absorbed and dilated about 7 cm The patient was told a high forceps or version would cause an infantile mortality of about 15 per cent, some laceration of the cervix and perineum A cesarean section would surely be a success as far as the infant was concerned and would be subjecting the mother to a danger of about 4 per cent (which is greater than I believe the mortality will be) She elected a cesarean section and made an uneventful recovery with the exception of some bladder irritation which responded promptly to two irrigations, leaving one ounce of 10 per cent solution of argyrol in the bladder to be voided with the next urination In conducting the delivery but four vaginal examinations were made and the patient was as free from danger of infection or nearly so as if a primary cesarean section had been done and certainly no one would have been justified in doing a primary cesarean section in this case unless it was that obstetrician practice to do so in all elderly primiparae with early rupture of the membrane and senile uterus—the class to which this patient belonged

It would seem that no harm is done patients in borderline cases (C V about 8 to 10 cm) to decide by allowing them to be in labor a moderate length of time, or to be more definite about the average time for the completion of the first stage of labor

Routh collected 1 282 cases of cesarean [illegible]
he divides into classes A B C and D [illegible]

D will not be considered here as they represent his infected cases Class A, designated as not in labor, contains 245 cases with nine deaths, or 3 6 per cent maternal mortality, Class B, in labor, membranes intact, 224 cases, five deaths, mortality 2 2 per cent

In the relatively few cases in which the degree of error has allowed the head to become firmly impacted in the pelvis and it requires but a very slight degree of enlargement to permit of its safe expulsion, a pubiotomy can be resorted to

Case 2—As a case in point, Mrs H entered the hospital Nov 7, 1908, a catheter was introduced into the uterus to induce labor She was advised by friends to leave the hospital and did so a few hours later (during my absence) On November 30, I was telephoned to that she had been in labor forty eight hours and was willing to return to the hospital where I saw her a few hours later, finding the head well molded, flexed and firmly impacted in the superior strait of the pelvis A pubiotomy was done and the patient delivered of a healthy, living child About two years later she was again delivered by the induction of labor at the thirty sixth week

It is unnecessary to detail some nineteen cases of this kind but suffice to say that I have had no mortality and no morbidity except one case in which secondary repair work was done In the eight cases I have been able to follow, all of the patients are able and most of them do such work as is necessary in the average life of women (Five cases were shown at a clinical meeting of the American Gynecological Club)

In outlining the field for pubiotomy, I should think it of greatest importance to select only those cases in which but a slight increase of the conjugata vera will permit the passage of a living child, and it is of special importance that sufficient trained assistance be at hand to prevent more than about 3 cm separation of the pubic bones It will never be a popular operation, will always have some morbidity, increasing in degree with the disproportion which exists, but in its limited field has a place in obstetrics

Unfortunately, it is still the custom among some who practice obstetrics to apply forceps as soon as labor does not progress as fast as they feel it necessary, or they yield to the importunities of the husband and friends and apply forceps simply because the child has not been born, without any knowledge of the relative size of the pelvis and its passenger It is frequently my experience to meet an anxious husband in the hall of the hospital and on inquiry as to the necessity of bringing his wife to the hospital I am told that one or two, and on one occasion, three physicians had tried to deliver with forceps and are now all tired out, finally suggesting moving the patient to the hospital in order that a fresh man could apply the necessary traction In these cases it is usually not great strength that is needed, but an understanding of the fundamental principles of obstetrics The cervix, closed or open, is not the rock on which the decision must be made, but the real question is, "Can the head descend into the superior strait and is it now engaged or can it be made to do so?"

It is in this class that we are called on to correlate the facts secured by our instruments of precision and the ear and finger and above all, our estimate of the patient's reserved strength and the vitality of the child Frequently our arch-enemy (meddlesome interference) has burned the bridges behind us and we must proceed by the vaginal route

SUMMARY

1 The normal progress of labor should be interfered with only when mother or child seems to be in danger

2 Judgment of each individual case should be carefully formed, applying all the known methods for measuring the pelvis, the size of the child's head, and placing special importance on the possibility of engagement or non-engagement as the result of pressing on the uterus and using the finger in the vagina, and the paw-like grip over the child's head

3 Due consideration should be given to the fact that a competent obstetrician has previously had difficulty and has secured a dead child from high application of forceps

4 As labor progresses, the border-line cases must be so conducted and at such a place as to permit of a cesarean section in preference to an application of high forceps, in case progress is not satisfactory and there seems to be a reason for hastening delivery

5 These cases should be conducted largely by abdominal palpation, judging of the descent by this method in preference to frequent and many times unnecessary vaginal examinations

6 In the absolute indications for cesarean sections, they should be preferably done as soon as the patient fairly enters labor, accepting as evidence of the opening of the os some slight vaginal discharge or, if necessary, one examination In the relative indications for cesarean section they should be done prior to the time that the patient shows an unusual degree of exhaustion and preferably prior to the rupture of the membrane

7 In elderly primiparæ the possibility of a senile uterus must frequently be the determining factor between spontaneous delivery, high forceps and cesarean section

8 High forceps should be applied only in cases in which the surroundings of the patient do not justify an abdominal cesarean The physician must be prepared to accept an infantile mortality in excess of 15 per cent., with a maternal mortality equal to elective cesarean section, plus a not inconsiderable morbidity

9 Pubiotomies should be done only when sufficient assistance is at hand to prevent undue separation of the pelvic bones and in cases in which a very slight increase of the conjugata vera is known to be sufficient to permit the passage of a living fetus

10 It should always be kept in mind that craniotomy has no place in obstetrics on a living child, and the physician should avoid putting himself in the position of having to sacrifice one life to save the other when both should have been saved

219 Sixth Street

CESAREAN SECTION *

C A STILLWAGEN, M D
PITTSBURGH

The history of cesarean section is exceptionally interesting But what concerns us most is this fact, that from a last-resort procedure of the utmost danger, it has evolved into one of the safest abdominal operations in the hands of the experienced abdominal surgeon

Statistics show a fairly high mortality rate, but if these are analyzed, it will be seen that nearly all fatalities occur in patients exhausted or septic from prolonged obstetric abuse, or that death is due to the complication for which the operation is performed For instance, in case of dystocia due to obstruction of the birth-canal, in which no other method of delivery has been attempted and there has been an early resort to operation, the

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mortality is practically *nil* That the operation in itself is simple and harmless is the point that should be borne in mind in its application for the relief of such conditions as placenta prævia or eclampsia

The general technic is that of other abdominal operations The best hospital facilities are not too good A skilled assistant is more than usually essential The abdomen is prepared in the conventional manner for laparotomy The incision is made from just below the umbilicus, downward It is usually of sufficient length, though it may sometimes be found expedient to enlarge it slightly upward, to the left of the umbilicus A soft towel, warm and moist, is placed above the fundus for the protection of the intestines An assistant, with a hand on either side of the abdomen, rotates the uterus and exerts moderate pressure downward and forward, bringing the anterior wall close to the abdominal incision If clear of the placental attachment, the anterior wall of the uterus is incised in the median line from a point about an inch above the vesical attachment, upward, to a sufficient distance for delivery Incision below the umbilicus offers better facilities for removal of the uterus in case it is deemed necessary, and I have observed that the low uterine incision, apparently, does not come in contact with the parietal peritoneum

The membranes are ruptured and the child delivered as quickly as possible The cord is clamped and cut In the meantime, the assistant is exerting still firmer pressure and the placenta is usually presenting at the incision, ready to be removed This is accomplished promptly and the uterus is forced through the abdominal wound Hemorrhage may be controlled by having an assistant make pressure on the broad ligament, though it is usually unnecessary The uterus is grasped at either angle of the wound and pressure exerted in such manner as to control hemorrhage and evert the edges, thus facilitating the introduction of the stitches At this point, the soiled linens are supplanted by fresh field cloths

Sutures may be of linen or catgut I prefer linen and place them as accurately as possible at intervals of half an inch They are introduced close to the edge of the wound, include peritoneum and muscle down to the endometrium and are securely tied and cut close In some parts of the wound it may be found necessary to coapt the edges with additional sutures of fine catgut The abdomen is closed as in the case of any other section

I do not ligate the tubes or resort to any other expedient in order to prevent future pregnancy I consider, if it is so deadly wrong to render a woman sterile for an ulterior motive, that I must be sure of my justification to do so in any event, and am glad to let my responsibility end when I have relieved the condition at hand, and console myself with the reflection that repeated cesarean section is not such a terrible catastrophe after all

After-treatment is about the same as that of other abdominal operations I have not found it necessary to administer ergot in my cases The patient may nurse her baby as soon as she feels able to do so, usually within the first twenty-four hours

In a general way, cesarean section may be said to be indicated in all cases of maternal or fetal dystocia, in which other methods of delivery are extra hazardous to either mother or child The indication is absolute, if by other methods delivery can be accomplished only by the sacrifice of the intra-uterine life

It is not my purpose to discuss the ethical question of our justification in destroying the life of the child in the interests of the mother The end is supposed to justify the means The same humane reasoning has brought forward those who advocate the hastening of the inevitable in the case of the suffering incurable, but the moral doubt and the knowledge of the fallacy of prognosis has limited the number of adherents to this plan of relieving distressed humanity

The therapeutic abortion is sanctioned by law and the medical profession generally, but there is a wide range of opinion as to the indications for its use

Unquestionably, the lives of many women have been preserved, it is probable also that some have died by the very methods intended to save them undoubtedly many children have been sacrificed needlessly It is presumptuous of us to speculate on the relative value of these lives

To terminate the intra-uterine life is then, to say the least, a matter to be approached with the gravest sense of responsibility instead of the cheerfully lax manner that too frequently prevails

About three years ago, a patient was referred to me by her family physician for the purpose of emptying the uterus three months gravid The woman had a contracted pelvis and the operation was considered justifiable by all concerned except myself The patient finally accepted the risk of cesarean section I later called in obstetrician in consultation who induced labor in the thirty-fourth week She has two living children, each delivered at the same period of gestation

Some months ago a physician of good repute had admitted to a perfectly reputable hospital a woman six months pregnant, and proceeded with all gravity, and no attempt at secrecy, to induce labor I learned that the only indications for emptying the uterus were that the woman was so determined to rid herself of her pregnancy that she threatened, unless relieved, to commit suicide and that her husband was put to the inconvenience of hiding his razor and other implements of destruction

A recent article on cesarean section reports a series of operations with brilliant results to both mother and child, in which the patient was permitted to decide the choice of treatment as between an early termination of the pregnancy and cesarean section

We all know many instances of prospective mothers unwilling to undergo the inconvenience incident to pregnancy, unwilling to risk the danger of possible eclampsia, of possible placenta prævia and so forth They consult the criminal abortionist who, if he cared for justification, could find it in the acts of reputable men who hold the life of the unborn child so cheap

The best way to discourage infanticide is to make it *seem* a greater crime

The indications for cesarean section, quoting Amand Routh, are

A Obstruction to labor (1) pelvic contraction (2) fibromyomata (3) cancer cervix or vagina (4) ovarian tumors (5) other pelvic tumors (6) stenosis, cervix or vagina (7) miscellaneous previous ventrifixation tonic contraction of uterus hour-glass contraction prolonged gestation

B Uterine hemorrhage (1) concealed accidental (2) placenta prævia

C Constitutional crises (1) eclampsia (2) [illegible] chorea advanced heart disease [illegible] gravis

Time will not permit the consideration of them all

Routh gives a conjugata vera diameter of less than 8 1 cm as the indication for the cesarean operation in contracted pelvis

It should be the object of the obstetrician or physician in charge to make his diagnosis and arrive at an early decision as to future treatment. In reaching his conclusions, he may bear in mind that the mortality of cesarean section is about the same as that attending the use of high forceps and that the risk of the operation increases proportionately to the severity of previous manipulations.

Without regard to pelvic measurements, it is of the greatest importance to determine the relative size of the child to the canal through which it passes. Two of my fatal cases occurred in women with normal pelves. In one, the dystocia was due to a large child weighing 13½ pounds, in the other to a large unyielding fetal head. In these instances, the fact that the pelvis was normal and that each had previous normal deliveries encouraged the physician in charge to renewed efforts to deliver by the natural route.

In spite of the fact that craniotomy offers little, if any, greater safety to the mother, it is, I regret to say, sometimes the operation of choice. Can any justification whatever be offered? It is more frequently the operation of choice in those cases in which prolonged attempts at delivery have rendered the patient a hazardous risk for laparotomy.

It is here that we may ask ourselves, what percentage of risk to the mother justifies the physician in administering certain death to the child? Is it 5 or 10 or 20 or 50 or 90 per cent? Shall each physician be a law unto himself? Shall he be influenced in his decision by the patient or by her friends?

It would simplify matters greatly, and stimulate us to greater endeavor to save both lives if we could bring ourselves to believe that we have no right to take one life in order to avoid a percentage of risk to another. Is it not clearly the duty of the physician to choose some method by which the lives of both may be preserved? It is especially the physician's duty so to do in the light of our present knowledge. It must be remembered that the patient is a hazardous risk for any operative interference and it is doubtful if craniotomy is less dangerous than is some form of the cesarean operation. Suprapubic hysterectomy in some cases, the Porro or suprasymphyseal section in others.

Placenta prævia is still an obstetric problem of great importance. The mortality, according to McPherson, is from 11 to 18 per cent. in hospital practice, while the fetal mortality is 40 to 57.3 per cent. To improve the mortality rate, both maternal and fetal, is an end devoutly to be wished for. The dangers are hemorrhage and sepsis. The indications of treatment are to prevent or check hemorrhage and to empty the uterus.

From a surgical point of view the quickest, surest and cleanest method of procedure would be cesarean section. It is instructive that cases are reported in which vaginal methods were attended with such trauma and hemorrhage that hysterectomy had to be performed as a last resort, and still the patient survived. McPherson, in the article quoted above, places the maternal mortality in cases of placenta prævia in which cesarean section has been performed as less than 4 per cent.

I believe that it is conservative to state that the operation is indicated in this condition in all cases of central placenta prævia, and in all cases of the partial variety with living child at or near term, provided that adequate surgical skill is available and the patient is in such condition as to be a fair operative risk.

In eclampsia, cesarean section is a therapeutic agent of value. It empties the uterus quickly, it lowers blood-pressure by the attendant loss of blood, it adds to the safety of the child, it does away with the trauma and other dangers incident to forcible dilatation of the cervix. It is indicated in primiparæ with rigid undilated cervix or any condition in which other methods would cause delay or unusual trauma to mother and child. I have had occasion to operate twice in this condition.

In one instance the patient, a primipara in the eighth month of pregnancy, was admitted to the hospital unconscious. She had had four convulsions. Temperature was 103, pulse 130, respiration 26, the small quantity of urine that I was able to obtain by catheterization was solid albumin. Blood-pressure was 210, cesarean section was performed at once. Blood-pressure taken immediately after patient was returned to her room was 160. Both mother and child left the hospital in good condition.

In the other case the patient was unconscious when she entered the hospital. She had one convulsion after being

TABLE 1.—PATIENTS OPERATED ON AT PERIOD OF ELECTION

No.	Date	Indication	Result Mother*	Result Child†	Remarks
1	6/21/06	Rachitic dwarf	+	+	Successful cesarean operation eight years previous
2	11/10/06	Carcinoma of cervix	+	+	Cervix amputated by cautery in sixth month of pregnancy
3	4/3/07	Fibroid obstructing birth canal	+	+	Suprapubic hysterectomy
4	12/2/07	Fibroid obstructing birth-canal	+	+	Suprapubic hysterectomy
5	1/12/08	Ventrifixation of uterus	+	+	Transverse position
6	10/5/10	Fibroid obstructing birth canal	+	+	
7	11/15/10	Rachitic dwarf	+	+	Suprapubic hysterectomy

TABLE 2.—MISCELLANEOUS

No.	Date	Indication	Result Mother*	Result Child†	Remarks
1	10/7/03	Excessive fetal development	—	—	Cause of death, shock
2	4/4/09	Large non molding fetal head	—	—	Cause of death, streptococcus infection
3	11/11/09	Impacted face presentation	+	+	
4	1/2/10	Excessive fetal development, rupture of uterus	—	+	Cause of death, nephritis
5	[illegible]/2/10	Impacted face presentation	+	—	
6	11/16/10	Eclampsia	—	—	At end of seventh month
7	12/21/10	Eclampsia	+	—	Ninth month of pregnancy
8	4/9/12	Giant fetus, transverse position	—	—	Cause of death, septic peritonitis

* In this column + stands for recovery, — for death.
† In this column + stands for live birth, — for dead birth.

admitted. She was seven months pregnant. She had no convulsions following the operation and became perfectly conscious within twenty-four hours, the urine increased in amount and it was thought she would recover. She developed pneumonia and died on the fifth day.

In reporting my operations, I have divided them into two classes: (1) operators at period of election; (2) miscellaneous.

In the first class there are seven cases without maternal or fetal mortality. The indication for operation was, in two cases, contracted pelvis of the rachitic dwarf, in three cases fibroid obstructing birth-canal, in one case transverse position in patient with ventrifixation of uterus, in one case, carcinoma of cervix. In the latter, carcinoma was diagnosed in the sixth month of gestation. At that time, the cervix was amputated by cautery. Pregnancy was uninterrupted and cesarean with complete extirpation of the uterus was performed at about the thirty-sixth week. Unfortunately, the baby died before leaving the hospital. But it is gratifying that the mother, after six years, has had no recurrence of malignant disease.

Cases 1, 2, 6 and 7 in the miscellaneous table have been referred to in the body of the paper. Cases 3 and 5 impacted face presentation. The patients were in labor for a considerable period of time, but I had every reason to believe that they were not infected. Both mothers recovered. One child was still born.

Case 4 was one of rupture of uterus. Patient had been long in labor, and after prolonged use of forceps under anesthesia was in profound collapse when admitted to hospital. I administered normal saline solution intravenously in both arms and performed hysterectomy. The patient rallied nicely from shock but died of nephritis.

In Case 8 I was called to see the patient when she had been some time in labor. The arm protruded from cervix. An attempt at version had been made. After examination, that method of delivery seemed to me impossible. The abdomen was very large and completely overhung the vulva, patient reclining. The lower abdomen and external genitals were exceedingly edematous. The legs and feet greatly swollen and hard. A catheterized specimen of urine showed large amount of albumin. I considered the case practically hopeless. The abdomen was opened. The fetus was so tightly wedged in the transverse position that I was unable to correct the marked dextrotorsion until after the uterus was emptied. In an attempt to make the operation extraperitoneal, I attached the parietal peritoneum to the uterus, surrounding the proposed line of incision on all sides. A giant fetus was delivered, weighing thirteen pounds. The uterine and abdominal wounds were only partially closed and were drained with iodoform gauze. The patient did very well for several days. The albumin almost completely disappeared and the quantity of urine in twenty-four hours reached as high as 70 ounces. The patient died of septic peritonitis on the tenth day after operation. I feel sure that this patient would have recovered if she had been removed to the hospital and hysterectomy performed. As I have said, the best hospital facilities are not too good and I am convinced that a patient must be ill indeed if we are not well repaid for the slight delay occasioned by her removal to a proper environment.

In conclusion I would repeat that it should be the object of the obstetrician or physician in charge to make his diagnosis and arrive at an early decision as to future treatment, bearing in mind that the risk of the operation increases proportionately to the severity of previous manipulations. That the operation in itself is simple and harmless is the point that should be remembered in its application for the relief of such conditions as placenta previa or eclampsia. The field of usefulness of cesarean section is enlarging, therefore it is important that none of the stigma of high mortality, which attends the procedure in complicated cases, should attach to the operation done at a period of election. Hence the above classification.

121 South Highland Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MILLER AND STILLWAGEN

DR. R. C. NORRIS, Philadelphia: I take it that nothing has been produced from modern obstetric procedures which is on such secure foundation as that when there are serious obstacles to labor the elective cesarean section is the operation of choice. We have been accepting the measurement of 7.5 cm. for the conjugate as the absolute indication for cesarean section, and some of those skilled in both abdominal and obstetric work are beginning to widen this indication to 8 cm. I know of no problem in obstetrics more difficult of solution. When we realize that 80 per cent. of patients with conjugates above 7.5 cm. are delivered spontaneously and that only 5 per cent. will require major obstetric procedures we can understand that we cannot without a test of labor select elective cesarean section without some anxiety as to its real necessity. I am still old fashioned enough to believe that with relative disproportion with a conjugate between 9 and 10 cm. the induction of premature labor two or three weeks before term has a distinct field of usefulness. I should not think I did my duty to my clientele unless I employed this. When we say patients must have a test of labor it must be a *test* of labor. This means perhaps two hours of hard bearing-down pain. Anything short of this is not a test of labor. Considered from the standpoint of statistics we know a real test of labor increases the dangers of cesarean section and of pubiotomy. It has been my experience that as the mechanism of labor goes on lateral flexion of the head increases and the sagittal suture will be brought nearer to the sacral promontory. If this is ever less than 1 inch forceps is always to be abandoned as a means of treatment. The crux of the matter is: Shall we do in these cases, which have been subjected to a test of labor, pubiotomy or cesarean section? Either operation on an exhausted patient is a bad surgical procedure. If we are prepared to believe that the mortality of cesarean section on exhausted patients is from 5 to 10 per cent. and that the mortality of pubiotomy in similar cases is less than one-half as great, with however a much greater mortality rate for the child, we shall be obliged to elect pubiotomy. I do not agree with Dr. Miller that 3 cm. is the maximum separation of the severed bones that should be permitted. In my cases it has been 5 or 6 cm. with no resulting harm to the bladder attachments or the sacro-iliac joints. With the dangers of extensive laceration of the soft parts pubiotomy means more than the skill of the abdominal surgeon. It means the additional skill of the obstetrician. I believe pubiotomy is justifiable after a prolonged test of labor carefully managed to guard against infection and exhaustion.

DR. F. F. MONTGOMERY, Philadelphia: In 1883 before the Philadelphia County Medical Society I read a paper in which I asked, "Is craniotomy on the living child justifiable?" and took the ground that it was not. The progress from that time to this has been very great. We no longer find, as was then shown by the investigation of Harris, that the woman delivered with the horn of a cow was attended with less mortality than the woman subjected to cesarean section by the surgeon. Cesarean section for placenta previa was not even considered at the time of which I speak for the treatment of such cases. It has been shown by Pinkow that in twenty-thr[illegible] in which cesarean section was done in which the placenta [illegible] attached between the body and the cervix th[illegible] mortality while under the ordinary treatment eight [illegible] terminated otherwise [illegible] another field of usefulness of cesarean section [illegible] and ten [illegible] results [illegible] cases. In many [illegible] the method [illegible] the woman [illegible] with high arterial tension, the chances against both mother and child will be greatly reduced by the employment of cesarean section That this operation under later methods of treatment and in proper cases is not such a grave procedure is shown by the work of such men as Boyd, who records twenty seven cesarean sections with no maternal mortality and only one fetal death, and that not attributable to the operation Cases are on record in which the operation has been performed on one woman five times with five living children and with four living children in another The subject is one of importance, and if the investigator is careful to select his cases and to operate promptly, there is no question but that the mortality of mother and child will be greatly reduced

DR **ROSS MCPHERSON**, New York We encounter in some cases a conjugate even longer than normal with much lateral contraction, and we must remember that cesarean section is at times indicated where the conjugate is longer than normal When I read a paper on cesarean section before this Section some years ago, reporting 186 cases from the New York Lying In Hospital, I gave as two of the indications, placenta prævia in certain cases, and eclampsia, and I almost caused a riot I am glad that some of the other men feel the same way about it now I have had eight cases of cesarean section in placenta prævia with no deaths of the mothers and two deaths of children, the one dying on the third day, the other one being still born

DR **E G ZINKE**, Cincinnati Since the completion of the doctrine of narrow pelvis and the new therapy thereof, the practice of obstetrics has virtually been revolutionized But it will take a long time before the profession generally will be familiar with all the details of the new management of cases of narrow pelvis I have advocated cesarean section for certain cases of placenta prævia for the last eleven years But the pendulum has now swung too far to the other side I do not endorse cesarean section for every case of placenta prævia There are cases of placenta prævia which can be treated with perfect safety by other methods Cesarean section for eclampsia should be considered only after other intelligent medical treatment has failed, and before the patient's vitality has been reduced Veratrum viride if properly administered, will stop the convulsions in the majority of cases This all means that the practitioner who undertakes to deliver women should know obstetrics, that he should study his cases before the time of birth and determine, prior to the event of labor whether the patient before him can be safely delivered at home or whether the hospital is to be preferred There lies the crux of it all It is a mistake to send patients to the hospital after they have been infected or injured by the introduction of the hand or the use of the forceps

DR **HENRY SCHWARZ**, St. Louis None of the speakers has mentioned a very important means for finding out whether or not in a given case of first pregnancy the pelvis is sufficiently roomy for the passage of the fetus, independent of careful pelvimetry, which, of course, must be practiced in every case It is well known that toward the end of a first pregnancy the presenting part descends into the pelvis, so that vaginal examination of primiparæ, when made about a week before term, reveals in over 90 per cent of all cases the presence of the fetal head well down in the pelvis, and in these cases there will be no trouble so far as the pelvis is concerned, no matter what the pelvic measurements may be On the other hand, whenever in a primipara the presenting part has failed to descend into the pelvis a week before term there is likely to be trouble, even if the pelvic measurements are satisfactory, in such cases an exact antepartum diagnosis should be made, if necessary, with the aid of an anesthetic Placenta prævia never forms a justifiable indication for cesarean section Most cases of placenta prævia are handled by the general practitioner, he sees them away from medical centers and at all hours of the day and night It would be discouraging to the practitioner if we were to make him feel that his cases of placenta prævia would be better off in the hands of the specialist in a hospital, where they could be delivered by cesarean section instead of teaching him how to handle his cases safely and successfully with the means at his command My pupils are trained to handle their cases of placenta prævia in out of the way places by the same means which they see employed in our clinics, and we do not have a mortality of 4 per cent. in our cases

DR. **T M BURNS**, Denver In my paper last year criticism was made of my advocacy of cesarean section for eclampsia I have done seven cesarean sections for eclampsia and have saved all the mothers and babies I want to prophesy that in the future when we do cesarean section we will examine the appendix and the gall bladder and operate on them also if necessary

DR **C S BACON**, Chicago The examination in these cases must show us not only the size of the pelvis, but the shape, not only the length of the conjugate, but whether we have a normally shaped pelvis and whether the first and second vertebræ project so as to make a long inlet instead of a short inlet It is interesting to note that the relative indication is gradually rising Formerly it was 5 5 cm, then 6, then 7, and now it is 8 Seven cm I believe is a limit that can well be adopted The probability of spontaneous labor differs very much in these cases I do not believe the probability is as great as given by Dr Norris We find from statistics that the possibility of spontaneous labor when the vera conjugata is from 9 to 10 cm is 70 per cent, when from 8 to 9 cm, 40 per cent., when from 7 to 8 cm, 10 per cent The chances for spontaneous labor, then, can be taken in the two upper classes, but in the lower with considerable risk The main question is, in all these cases, if we give up the thought of spontaneous labor, whether induction of labor is possible It is not desirable in the lower groups In case labor has begun and the patient is possibly infected, shall we choose cesarean section or hebosteotomy? I have no hesitation in agreeing with Dr Norris that hebosteotomy is the safer of the two

DR. **M M LUCID**, Cortland, N Y In the presence of modern science, it would not be a sane conclusion that the self appointed power of the physician is justifiable To no physician, either legally or morally, is such a power granted. It is perfectly sane, however, to make the statement that in view of the advantages of modern surgery, a cesarean section offers the best possible chance of life for both mother and child I offer the report of one case in which both mother and child are alive and well at the eighth month I want to emphasize a point in my technic, that after making the incision in the abdomen and in the uterus, the sac should not be immediately opened, but that the hand should be passed around the sac, freeing the placenta, and the sac, child and placenta delivered simultaneously from the abdomen and the sac then opened immediately for resuscitation of the child.

DR **W M SPRIGG**, Washington, D C I want to report fifteen cases of consecutive cesarean section for dystocia, pelvic deformity, without a death and with only one death of the fetus and that due to the anesthetic I do want to call attention to one point in the technic not mentioned and which in my hands has proved very satisfactory That is the use of a rubber dam about 18 inches square with a small hole cut in it in the operation with partial delivery of the uterus With the dam over the uterus separating it from the abdominal cavity, one can do the entire operation without having a particle of blood in the abdominal cavity

DR **E G ZINKE**, Cincinnati It is very desirable to counteract the present infatuation to perform cesarean section in every case of eclampsia The cases cited are not proof of the value of cesarean section in the treatment of puerperal convulsions When I was a mere tyro in the practice of obstetrics I saw nine eclamptic patients recover without operative intervention Both mother and child lived in every case There are many among us who can report similar results

DR. **HAROLD A. MILLER** Pittsburgh While it is a matter of great importance to secure all possible information regarding the size and shape of the pelvis, still, in borderline cases, other things such as the size of the child, position, presentation, amount of molding and effectiveness of pains, may be the determining elements in electing a cesarean in preference to high forceps I agree with Dr Norris that pubiotomy has a field which is limited to those cases in which a very small amount of increase will permit of delivering a living child

The expression should go out from this body that we should never be content with pulling a dead child out of a mother, but that we must give to that mother the benefit she is entitled to expect. What we want to do is to handle these cases largely by the result of abdominal palpation by which we determine whether the head is still floating above the superior strait. If a major operation is to be done the patient should be sent to the proper place for its performance. Do not touch the patient and kill the child and then refer the patient to some place after infection. We should never forget that the best pelvic measurement is the fetal head. The only thing we are interested in is whether or not that fetal head can pass through the birth canal. For that reason it is best if possible to give all women the test of labor. I refer to a test that would compare to the average first stage of labor, not to a certain amount of dilatation of the os. If the head at that time has made no progress I would say that the case had better be treated by cesarean section.

Dr. C. A. Stillwagen, Pittsburgh: In regard to Dr. Sprigg's suggestion concerning the use of the rubber dam, I may say that it is the custom of most operators not to deliver the uterus from the abdominal cavity. If, however, the operator chooses to bring the uterus out through the abdominal incision the use of the rubber dam is an excellent procedure.

INDUSTRIAL LEAD-POISONING IN THE LIGHT OF RECENT STUDIES

ALICE HAMILTON, M.D.
CHICAGO

Industrial lead-poisoning is a disease with which the ordinary practitioner has little familiarity. Occasionally, a case may come to him and be recognized as such, provided the occupation of the patient is one in which the danger of plumbism is notorious or there are unmistakable symptoms, such as a well-developed radial palsy.

Yet we know that plumbism is a disease fairly common in industrial centers in other countries, and that it not only causes permanent disability or death, but also decidedly influences the course of other diseases. Its importance then is undeniable, and the reason why it has escaped careful study in our country is hard to find.

PREVALENCE OF INDUSTRIAL PLUMBISM IN THE UNITED STATES

It is commonly supposed that the amount of lead-poisoning in the United States is negligible as compared with that found in the older countries, and that this comparative immunity comes from our superior methods of manufacture, the excellent construction of our factories and the better health of our working classes, which last rests in turn on higher wages and better housing and food. Unfortunately for our national pride, none of these assumptions will stand investigation. There is more not less lead-poisoning in certain lead trades if not in all lead trades in the United States than in the corresponding trades in Germany and Great Britain.

In order to make a comparison between the proportion of men leaded in the United States and in Great Britain or Germany we must turn to certain trades which have been studied intensively. Such a comparison can be made in the white lead industry and in some branches of the pottery trade. In an English white and red lead factory employing ninety men there was not one case of lead-poisoning in five successive years. In an American white and red lead factory employing eighty-five men the doctor's records for six months showed thirty-five men leaded. Another English factory employs 182 men and did not have a case of lead poisoning last year. An American factory with 170 men had sixty poisoned during this same year.

The pottery trade in certain branches is well organized and the union records give more accurate information as to diseases than can be obtained in any other way. Through the courtesy of a secretary of a local dippers' union I am able to give the number of men who suffered attacks of plumbism during the year ending April 1911. Out of a local of eighty-five dippers thirteen men had had sixteen attacks of lead-poisoning. The English factory inspection report for 1910 states that in the Staffordshire potteries among 786 male dippers there were thirteen cases of lead-poisoning, exactly the same number as among our eighty-five dippers. In other words, in Staffordshire one dipper in sixty or sixty-one suffered from acute plumbism during one year, in Ohio one dipper to six or seven.

It certainly needs no further demonstration to prove that industrial lead-poisoning is frequent enough in our country to constitute a serious problem.

LEAD COMPOUNDS USED IN INDUSTRY

Many authors in treating of the comparative toxicity of the different salts of lead have assumed that this depends on their solubility in water or in dilute hydrochloric acid but experiments on animals have proved that the conclusions based on tests of solubility in dilute hydrochloric acid *in vitro* are misleading and do not show what takes place in the stomach. Thus Rambousek, Blum and E. Leymann showed that the sulphate and chromate are both of them soluble in the gastric juice, and can cause severe lead-poisoning in animals, while the sulphid is apparently harmless. Rambousek's experiments showed that the solution of metallic lead and of white lead is helped by the presence of 1 per cent. peptone. A more accurate classification therefore of the poisonous lead salts is that of Leymann who bases it on their solubility in gastric juice, although he adds that, other things being equal, a salt is poisonous in direct proportion to its dustiness.

Of late more and more stress has been laid on this factor of dustiness and other physical properties. Thus the English experts believe that a less soluble lead salt may be actually more dangerous than one which is more soluble, but less easily powdered. For instance, lead acetate is very soluble, but it has a disagreeable taste so that the workman cannot swallow it unawares, and it is sticky, not powdery, so that in handling it he is not exposed to dust-laden air. On the other hand the oxids, the basic carbonate, the chromate, sulphate and monosilicate are all dusty and some of them very light and fluffy. They are also almost tasteless, and the workman who handles them dry breathes into his mouth and swallows quantities without noticing it. Therefore the English authorities—Oliver, Goadby and Legge—regard the lead salts as dangerous in proportion to their dustiness. They concentrate their efforts on the abolition of dust and with amazing practical success.

The worst of the lead compounds is probably Pb O, the suboxid, which forms on the surface of melted lead, and is given off in fumes at higher temperatures (Sieger). It is this oxid which causes poisoning in lead smelters, zinc smelters, brass molders, workers in the typographic trades and the men employed in making lead pipe and wire, sheet lead, solder, shot and all the multitude of articles made from metallic lead. Men who handle these objects after they are made [illegible] become poisoned because the oxid [illegible] face of the lead rub [illegible]

The second place [illegible] higher oxids PbO ([illegible] lead), or by others to the basic carbonate, white lead. The latter is decidedly more soluble and dose for dose more poisonous, but it is not so light and fluffy as are the oxids, and therefore Etz places it lower in the scale of industrial poisons. White lead, classed as the most dangerous of all by Lehmann, is the best-known of the lead salts and probably responsible for more industrial plumbism than any, for it is white lead that poisons the majority of painters, and it is white lead that is used in the potteries and manufactured in white-lead works. The oxids, litharge and red lead are used by makers of storage batteries; they enter into the composition of rubber, glass, varnish, certain kinds of pottery glaze, the enamel used on sanitary ware and the paint used to cover iron and steel. A few months ago there was an outbreak of lead-poisoning in the Brooklyn Navy Yard involving twenty men who had been set to chipping off old paint from the sides of steel ships.

My own experience would lead me to believe that the oxids are more dangerous than white lead. In two factories in which the medical records of white-lead men and oxid men are kept separate, the rate of poisoning is higher in the oxid department, and the average period of employment is shorter. For instance, in one of these there were fourteen cases of lead-poisoning among sixty-five men employed in the white lead department, or 22.5 per cent., and seven cases in the oxid department among twelve men, or 58.3 per cent. The average period of employment was four years for the white-lead men and one year for the red-lead men.

Lead sulphate is beginning to be an important substance in American industry, though it has not as yet gained much footing in other countries. It is to a great extent displacing white lead in the rubber industry, and is even entering, usually as an adulterant, into the composition of mixed paints. It is also produced in large quantities in smelting the sulphur-containing lead ores, and, mixed with the suboxid, is the cause of lead-poisoning in smelters. For a long time lead sulphate was held to be almost, if not quite, harmless, for it is insoluble in water and very sparingly soluble in dilute acids. Indeed, even now many physicians in our country advocate the giving of a weak sulphuric acid drink to workmen in the lead trades, under the impression that the formation of the sulphate will render the ingested lead harmless.

Rambousek's and Blum's animal experiments have shown that there is only one insoluble and therefore harmless lead salt—the sulphid—and that the gastric juice, probably with the help of peptone, dissolves lead sulphate comparatively quickly. Goadby, experimenting *in vitro* with gastric juice, found that it was even more soluble than the basic carbonate or than litharge, and Sommerfeld states that the bronchial mucosa renders soluble lead sulphate which has been breathed in.

AMOUNT OF LEAD REQUIRED TO PRODUCE TOXIC SYMPTOMS

It is impossible to say how large a daily dose of any of the lead salts is required to produce symptoms of lead-poisoning, and we are not, of course, concerned here with the question of a single toxic dose. Brouardel states that the daily ingestion of 1 mg. is enough to cause poisoning. Arnold Gautier puts it much higher, 8 to 20 mg. daily. Others, as Hauck, insist that the amount ingested must be much larger than this. All these observations are of slight value, because in lead-poisoning individual susceptibility plays so very large a part.

PREDISPOSING FACTORS

1. *Individual Idiosyncrasy.*—The most superficial study of cases of plumbism is enough to show the great influence of individual susceptibility; indeed, every foreman and every workman knows that there are men who can hardly stand any exposure to lead, while others can handle it for years with impunity. I have never been in a factory so bad that the employer could not produce at least one or two old workmen who had breathed and swallowed lead compounds for from twenty-five to forty years, and yet remained apparently healthy. For instance, in one white lead factory I found the record of a man who had begun to feel symptoms of lead-poisoning at the end of two weeks' time, and who died of acute plumbism after five and a half months' work. In the same factory I talked to a man who had worked in clouds of white-lead dust for thirty-two years, ever since he was a boy of 12, and had felt no ill effects.

Hirt, who had long experience in industrial lead-poisoning, says that 20 per cent. to 30 per cent. of all leadworkers are not susceptible. Of the remaining 70 per cent. to 80 per cent., something over one-half (about 40 per cent. of the whole number) sicken quickly, the others more slowly. The few accurate figures I have been able to obtain on this point seem to indicate a greater susceptibility than that observed by Hirt on the part of American workmen, for the proportion escaping is smaller than Hirt's. In two very dangerous factories, where every employee was examined by a physician at least once a fortnight, 35 per cent. of all the men in one and 28 per cent. in the other were found suffering from the effects of the lead; 52 per cent. and 40 per cent. of all who had been employed as long as one year had lead-poisoning. Only 10 per cent. in one and 12 per cent. in the other had worked for more than eight years and had never been poisoned.

2. *Family and Race Idiosyncrasy.*—An oversusceptibility to lead-poisoning is found by Oliver to be characteristic of certain families, and he asserts that the son of a lead-poisoned father or mother should never go into a lead trade. Whether race has anything to do with it is a question. There is a general impression that negroes are more susceptible than white men. Edsall quotes Monell, an expert lead-smelter, as saying that negroes are specially prone to lead convulsions, and Edsall finds that of six cases of negroes who were in Philadelphia hospitals for lead-poisoning, three were encephalopathies. I have studied but one lead trade in which negroes are employed, the white-lead industry, and my figures are too small to be of any real significance. I give them only as tending to confirm Edsall's view. In the white-lead factories studied 1,600 men make up the pay-rolls. About 250 of these are negroes, or 15 per cent. Among nine cases of encephalopathy which were reported to me in this industry, four were in negroes, or 44 per cent.

3. *Influence of Sex.*—Sex is recognized as a factor in susceptibility, even by legislators. Not only are women said to be more susceptible than men, but the disease is more apt to assume the severer forms in women. Oliver states that there were, in 1897, 328 men employed in the white-lead works in Newcastle-on-Tyne and 571 women. The cases reported during six months of that year were nineteen men, or one for every seventeen employed, and sixty-six women, or one for every eight or nine employed—just about double. The factory inspector's report for 1910 shows that in the Staffordshire potteries the incidence of plumbism was twice as great among the female dippers as among the male.

The only trade in which I have been able to study the relative susceptibility of men and women to lead-poisoning is the pottery industry.

At first sight it would seem that my figures bear out the statement that women are more susceptible to lead-poisoning than men, for there were in 1911 fifty-seven cases among 400 women, or one to seven, and only eighty-seven among 1,100 men, or one to twelve or thirteen. But a closer analysis shows that there are factors influencing this difference other than the factor of sex. In East Liverpool and Trenton the relative proportion of male and female cases more than bears out the English theory. Seven hundred and ninety-five men had thirty-nine cases, or one to every twenty or twenty-one, and 150 women had twenty-nine cases, or one to every five or six These are the districts in which white ware the National Brotherhood of Operative Pot- us sway, and the women have many handicaps as ompared with the men, besides that of sex idiosyncrasy. They are unorganized, underpaid, poorly housed, poorly fed, subject to the worry and strain of supporting dependents on low wages, while the men are organized, prosperous and independent. In the unorganized pottery fields, however, in the tile works and art potteries of the Zanesville district, men and women are in the same economic class, all making low wages with everything that that implies, and here we find no such disproportion between the two sexes in the matter of lead-poisoning. In these potteries there were in 1911, 304 men employed and forty-eight cases of lead-poisoning, or one for every six or seven men; 243 women were employed and there were twenty-eight cases found, or one for every eight or nine.

In discussing the relative frequency of lead-poisoning among men and women, several physicians told me that they saw more male cases than female. Two of them, Dr Bunter and Dr Sellers of Zanesville, said that while they saw more men with the typical gastric form of lead-poisoning, they saw large numbers of women and young girls with less pronounced and characteristic symptoms which they, however, attributed to the lead, such as profound anemia with constipation and sometimes amenorrhea. Now, it is more than probable that many such cases were not reported to me, for the majority of physicians hesitate to speak of lead-poisoning if there is no colic. The British reports, however, include cases of 'anemia of adolescence, aggravated by employment.' Certainly it is probable that this is one reason for the discrepancy between my results and theirs as regards female cases.

4 Influence of Alcohol.—Alcohol is recognized universally as the most important factor in predisposing to lead-poisoning, although it has never been pointed out that, if this be true, the oversusceptibility to lead of women, the comparatively temperate sex, must be even greater than we have supposed. Pieraccini insists that alcohol and lead work together, forming a vicious circle, for as alcohol renders a man more susceptible to plumbism, so plumbism in its turn makes him more susceptible to the action of alcohol. I have found that lead-poisoning in its early stages may drive to intemperate living a man who up to that time had been sober, because the peculiarly disagreeable, sweetish taste so persistent in lead-poisoning yields better to beer and whisky than to tea or coffee or milk. I have talked with men who told me quite seriously that this fact proved that the beer cut the lead and carried it off and that they always advised new men to drink beer. Later on when appetite is quite gone and there is a loathing for solid food, the men bring home their lunches untasted and depend on beer almost entirely. Girls seem to take to very sour pickles and strong tea to get rid of this detested sweet taste.

5 Influence of Fatigue, Living Conditions, Etc.—Rambousek says that a strong man poorly nourished and housed, is in greater danger of lead-poisoning than a weak man well housed and fed. In our country there is distinctly more lead-poisoning among the non-union potters in the Zanesville district, working for $1.25 to $1.65 a day, than among the union potters of East Liverpool or Trenton, working for $2.50 to $5 a day. Thus, in Zanesville, among 304 men employed forty-eight cases were found, or one for every six or seven men employed. In East Liverpool, among 785 men, thirty-nine cases were found or one for every twenty or twenty-one employed. It must be remembered that the union records are fairly full, and it was much easier to trace the cases in East Liverpool, so the contrast would probably be even greater if the full truth were known, but it must also be remembered that much of the glaze used in Zanesville is stronger in white lead than that used in East Liverpool.

6 Influence of Season.—It is generally held that there is more lead-poisoning in summer than in winter and the reason usually assigned is the greater absorbent power of the skin in summer and the greater thirst leading to alcoholic excess. The generally increased susceptibility to gastric disorders during the summer months is also pointed to as influencing the development of lead-poisoning. I have not been able to convince myself that there is relatively more lead-poisoning during summer in the trades I have studied but that there is actually more is probably true, because there is more work done in these trades in summer. This is the season of activity in the building trades which means an increased number of painters, of bath-tub enamelers, of sanitary ware glazers and of tile workers, and therefore, also, an increased demand for white and red lead.

LENGTH OF EXPOSURE NECESSARY

The length of time a man may be exposed to the action of lead before he develops symptoms of poisoning is a question of practical importance, because many foremen and some employers hold that the best way of protecting their men against industrial plumbism is to employ them for short periods, a few weeks or perhaps three months. Such men naturally do little else to protect their employees. One can hardly expect a foreman to show much solicitude for a gang of Poles or Italians whom he expects to lose in a few weeks' time. Now if it could be shown that there is a period during which a man can be employed without risk, there might be something to say for this view, but this is not true. It depends on the quantity of dust to which the man is exposed and his individual susceptibility. Tanquerel reports a case of a man who developed palsy at the end of one week's work in white lead. Sabbatini has seen colic during the first week of employment in white lead. I found a white lead worker employed in an extremely dusty neglected factory who went to the hospital with both colic and neuritis at the end of three days' employment. My figures for length of exposure in this trade cover 120 cases; eight of the patients sickened in less than two weeks' time, thirty-six in less than a month, eighty-nine in less than a year. Only thirty-one of the 120 had worked as long as a year. The enameling of bath tubs is done with a powder composed of silicates, borates and oxid of lead which is fused and then ground and applied dry. The proportion of lead oxid is from 6 to 20 per cent. As some of it has by fusion been changed to the insoluble disilicate, the powder contains usually not over 6 to 7 per

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1. 'Employed' means employed in work involving exposure to lead.

cent soluble lead In this trade the average length of exposure is much longer than in the white-lead industry One only of sixty-four enamelers was poisoned in less than a week's time, two in less than a month, nineteen in less than a year, and forty-two had worked more than a year But among the mixers and grinders of the enamel the period of exposure was much shorter Thirty-four averaged a little over six months' employment

Cases of unusual susceptibility to lead which have come into my hands in other trades are the following A Pole, who worked in a comparatively safe lead trade, making lead stoppers and strainers for wash-stands and who had colic at the end of a week A painter, working indoors, and sandpapering dry paint, fell in convulsions at the end of nine weeks, was unconscious for three days and incapacitated for three months A lead-smelter had double wrist-drop and partial paralysis of both legs, for which he was treated four months in the hospital, without any improvement He had been at work only eight weeks

MODE OF ENTRANCE OF LEAD SALTS

This is a question not only of scientific interest, but of great practical importance Obviously, the whole sanitary control of the industry depends on whether we decide that the skin, the intestinal tract or the respiratory tract is the sole or the most important port of entry

That lead is absorbed through the skin, especially in hot weather is held to be true by many authorities, though some attribute much more importance to this mode of poisoning than do others Pieraccini and Guidelli in Italy, Roth and Sommerfeld in Germany, Manning in England and Edsall in this country think that the skin plays an appreciable part in the absorption of lead, especially in the summer, when the combination of lead with the fatty acids of the skin takes place rapidly Lewmann finds no proof for such statements, and though he cannot as yet deny the possibility of some absorption of non-water soluble compounds through the skin, he doubts that actual poisoning ever takes place in this way, and considers skin absorption of no practical importance in industrial lead-poisoning My own observations tend to make me think that the skin, if it acts at all as an absorbent, does so to a very slight extent In England, under the leadership of Oliver, Legge and Goadby, skin absorption is practically ignored, and the efforts of the government inspectors are directed toward the abolition of dust and measures to prevent the lead being carried into the mouth In the summer of 1910 I visited three white-lead factories in England and saw men smeared with white lead up to their shoulders and this in summer weather Yet in the whole district of Newcastle-on-Tyne where 1,320 are employed there were but five cases of lead-poisoning during 1910

We might compare in our country the incidence of lead-poisoning among pottery dippers, who work with their hands plunged in a liquid glaze up to their shoulders, the glaze containing some 10 to 20 per cent of unchanged white lead, with the incidence of lead-poisoning among bath-tub enamelers, who shake dry enamel over the tubs, the enamel containing a much smaller percentage of soluble lead

Among eighty-six dippers there were thirteen cases of lead-poisoning, or one to every six or seven

Among 118 enamelers fifty-eight cases of lead-poisoning were found, or one to every two and one-half employed

Certainly, if skin absorption were an important element it should result in more poisoning among the dippers than among the enamelers

The intestinal tract is, of course, admitted by all as the most important portal of entry, and some believe that it is only through the mouth and intestines that poisoning ever occurs These men recognize that lead may enter through the inhalation of dust, but insist that here, too, it is a case of intestinal absorption, the lead, which has been breathed in, being swallowed with the saliva Others of the German observers as Lewmann, Etz T Weyl and Wutzdorff, admit the possibility of direct absorption of lead compounds from the respiratory mucosa, and Weyl even believes that lead may penetrate the lung capillaries and reach the blood-stream This last statement has been experimentally proved by Goadby, who kept cats in an atmosphere of flue dust (lead suboxid), red-lead and white-lead dust, at the same time preventing them from licking their fur All lost weight and appetite, and suffered from constipation, colic, weakness of the muscles of the back and the extensors of the legs, and retinal hemorrhages Lead could be demonstrated in the walls of the capillaries of the lungs Goadby also states that lead will be found deposited in the mediastinal glands, whether it is administered with food, or by inhalation, or subcutaneously

Many striking instances can be given of the effect of dust inhalation in the production of industrial plumbism Teleky says that in a large factory in which 80 tons of white lead were used in indoor work annually, 163 cases of lead-poisoning developed among the indoor workmen, while among the outdoor workmen who handled almost three times as much (237 tons) there were only fifty cases It is hard for me to choose illustrative instances from my own experience, because all the lead trades I have studied are in our country extremely dusty trades Perhaps my statistics of lead-poisoning among painters, gathered from hospital records, would be as illuminating as any I have a list of 100 painters with plumbism who averaged twenty years in the trade, but among these are eleven who served less than one year All these eleven had been doing indoor work with sandpapering

DIAGNOSIS OF LEAD-POISONING

Of great practical importance is the diagnosis of lead-poisoning, and in the search for some one sure diagnostic sign many procedures have been suggested which have for a while seemed to fill the want, only to prove unsatisfactory in the hands of some observers DuMoulin, working on the theory that lead is excreted through the skin, urged the application of sulphid to the skin when, if the patient were suffering from lead absorption, a black precipitate would form, and this even after all the adherent lead had been removed by rigid cleansing Miura, however, proved beyond refutation that the test would succeed only on those parts of the skin which had been exposed to lead, and would fail on the surfaces which had been covered with clothing The DuMoulin procedure is advocated now only in cases in which the workman does not know what he has been handling and it is necessary to determine whether he has been exposed to lead Roth in Germany, Agasse, Lafonte and Heim in France and most English observers, especially Oliver and Bedson, maintain that lead is constantly present in the urine in plumbism, and place great value on its detection as a help in diagnosis Pieraccini does not believe that kidney elimination is of any importance Rambousek attributes little importance to the kidneys in the excretion of lead, von Jaksch does not find lead at all in the urine in the late stages of chronic plumbism, though he believes that it is always present in the early stages and during an acute attack. Blum agrees with von Jaksch that lead is excreted by the kidneys only when the system is saturated with it, and even then it may not occur, for in some of Blum's animal experiments none was found.

The basophilic granulation of the red blood-cells described fully first by Grawitz, has been more generally accepted as an unfailing aid in diagnosis. Indeed at the International Congress of Industrial Hygiene in Milan, this was declared to be an absolutely trustworthy sign of lead-poisoning, but at the next congress, held in Brussels in 1910, opinions had changed, and we find Biondi calling it a good positive but a bad negative sign, and saying that the presence of granules simply indicates young red blood-corpuscles and may be found one hour and absent the next, depending on the activity of the blood-forming tissues. P. Schmidt, on the ground of repeated observations, says that a small number of granular cells cannot be regarded as significant. There must be at least 100 out of 1,000,000 red cells, better 300 to 3,000, and even then carcinoma, malaria, chronic intestinal hemorrhage, must be ruled out, as well as leukemia and pernicious anemia. Oliver denies all diagnostic value to the presence of granules in the blood, for he has failed to find them in 40 per cent. of his cases. Rambousek examined the blood of lead-poisoned animals, and says that basophilia is neither a specific nor an early sign of plumbism, for he found it only once in seven animals.

The diagnosis of lead-poisoning must therefore rest on many, not on any one element, and I should like to add my voice to those that urge especially the importance of the anamnesis, the description of the patient's occupation. Increasing loss of strength, vague digestive disturbances, headache, loss of appetite, may mean nothing in an ordinary man; they are symptoms of great significance in a lead-worker, and if the physician makes no inquiry as to the man's occupation or, on ascertaining it, does not recognize it as involving exposure to lead he will inevitably fail in his diagnosis in the early stages of this disease. The importance of inquiring minutely into the occupation is insisted on by every writer of note on this subject, and it is suggested that DuMoulin's skin test be used in cases in which there is reason to suspect exposure to lead.

Weyl gives the following symptom-complex as characteristic of an early stage of lead-poisoning and sufficient when occurring in a lead-worker to establish a diagnosis, even in the absence of a lead line: "Pallor, disproportionate to the grade of anemia, foul breath, caries of the teeth, bad taste in the mouth, especially on getting up in the morning, loss of appetite, digestive disturbances of various kinds, intermittent attacks of weakness and trembling, which may make fine work impossible for the time, spots before the eyes, itching of the eyelids." Such a man hardly considers himself sick, yet he is already poisoned.

After interviews with several hundred lead-poisoned persons, I should wish to lay particular stress on the sense of increasing loss of strength and on the distaste for breakfast as the very earliest symptoms noticed by the majority of these people. In the absence of any signs of tuberculosis a complaint of increasing weakness on the part of a laborer should always lead to a careful inquiry into his occupation.

The diagnosis of chronic lead-poisoning is missed by the usual practitioner, even more often than the acute, for he is usually content to determine the existence of chronic gastric disturbances, contracted kidney, arteriosclerosis with cardiac involvement, and unless a typical palsy supervenes the underlying cause is often not sought for. Yet industrial lead-poisoning is, according to Weyl, predominantly a chronic process and exceptionally an acute.

HOW SERIOUS IS ACUTE PLUMBISM?

It is a question of great practical importance whether or not the lesions of acute plumbism are lasting. I have found that most foremen and managers and many physicians hold that one, or perhaps two or even three attacks of colic may be endured without risk of permanent injury to the organs. It is the exceptional physician who looks on every sign of lead absorption as a serious matter.

We have a great deal of evidence that lead once absorbed may remain latent in the system for long periods and then again make itself felt. There is Oliver's famous case, a woman who had been severely poisoned in youth, who had left work and for seventeen years been free from symptoms of poisoning, but who developed symptoms of cerebral saturnism. Pieraccini says the symptoms of lead-poisoning may develop first after a man has left lead work for some months, and Tanquerel reported the case of a man who had repeated attacks after several years' absence from such work. Bernhardt had a patient in whom symptoms of paralysis came on twenty years after exposure to lead. All authorities insist that one attack of lead-poisoning predisposes to another, and urge that a man who has once been leaded be refused work in a place where he will be exposed to the lead again. Practically, this is hard to enforce in a skilled and well-paid industry. Potters, Scotch hearth smelters, painters, hollow-ware enamelers, will cling to their trade in spite of suffering and loss of health. I have the histories of sixty-six enamelers who averaged between three and four attacks of poisoning.

Pieraccini believes that it is not possible to say positively that an attack of acute lead-poisoning may be completely recovered from, for it is more than probable that some permanent change has been set up in the parenchyma of the liver and perhaps of other organs, a connective tissue growth which tends to be progressive.

CONCLUSION

In conclusion, I should like to say a few words as to the situation at present in the lead trades in the United States. Some of these trades grow less dangerous as time goes on. The increasing use of cheap substitutes for white lead such as zinc oxid, barytes and lead sulphate, and of the German para-reds or graphite [illegible] lead may be bad for the product but [illegible] the workman. Anilin dyes are displacing [illegible] and green. In lead-smelting there is [illegible] away from the dangerous and [illegible] hearth to more economical [illegible] tion, and in the white-lead [illegible] increased introduction [illegible] work. The plu[illegible] and brass worker [illegible] lead industries [illegible] storage batter[illegible] glazed tile [illegible] to displa[illegible] to prohi[illegible] to the [illegible] in the [illegible] frequ[illegible] trial lead-poisoning in this country in comparison with countries where there is proper legislative regulation of the dangerous trades This contrast was brought vividly home to me by a description which I found in T Weyl's "Handbuch der Arbeiter Krankheiten" He is drawing what he considers a shocking picture of lead-poisoning as it used to be found years ago He says

> Lead tabes is the severest form of lead cachexia, now almost never seen, thanks to prophylactic measures Here we find more or less all the phenomena of plumbism in one individual Pallor like that of chlorosis, a predominance of the flexors over the extensors as shown in the hanging head, the bowed shoulder, the hands held in pronation, muscular tremors, causing a shambling gait and trembling movements of all the muscles of the body, disappearance of all possible fat, general emaciation

From my studies so far I can unfortunately testify to the fact that, thanks to the lack of prophylactic measures, Weyl's lead tabes is far from being a rare condition in our country, that instances of it can be found in every town where there are lead industries of a dangerous character, and that it is not even a vanishing condition, for new instances of lead tabes are being added to the number every year

Surely there is every reason why we should devote to this disease the same intelligence and energy that we devote to other preventable diseases There are many problems waiting solution We need research into the question of sex susceptibility, of race susceptibility, of the influence of summer heat, of the influence of muscular fatigue, we need, above all, research into the different lead trades of our country and the different forms of lead-poisoning that they produce, the localization of palsies, the frequency of encephalopathies As it is now, it would be hard to point to any disease equally prevalent, equally serious, equally controllable, which has been so neglected by the medical profession in America as industrial lead-poisoning

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EPIDEMIC POLIOMYELITIS IN NORWAY

ITS ETIOLOGY AND THE POSSIBILITIES OF ITS PREVENTION

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I HISTORY

Acute poliomyelitis has been recognized in Norway as a distinct disease ever since 1820 Cases were exhibited in the Medical Society of Christiania in 1842 and in 1853 In 1863, discussing the case from 1853, Voss pointed out that, judging from the resulting paralysis, the disease must have its seat in the spinal cord or in the anterior nerve-roots

The first epidemic of acute poliomyelitis broke out in 1868 in Dr A Christian Bull's district and was reported by him to the medical board of the state This epidemic lasted from June to August Fourteen persons were stricken, of whom twelve were children, with five deaths The symptoms were so characteristic that any doubt of the nature of the disease can be excluded Bull also reported two abortive cases — those of two children who were attacked by brief fever and indistinct paresis The possibility of a contagious virus as the cause of the disease was discussed

In 1886, Dr Oxholm described an epidemic in his district, it also prevailed during the months of July and August Nine persons were attacked. In the eighties several new cases were reported to the state medical board, these cases were regarded partly as cerebrospinal meningitis In 1898, Bulow-Hanson and Harbitz[1] reported three cases of acute poliomyelitis, two of the patients died, while the third, who had the abortive form, recovered The anatomic study gave the now well-known result acute, diffuse infiltration of the spinal cord and its membranes and of the medulla and pons Based on the anatomic conditions, the theory was advanced that acute poliomyelitis was an acute infectious disease and that the infection entered the system through the alimentary tract and throat

In 1889, another epidemic broke out in a country district (Bratsberg) during the months of July to October There were fifty-four cases, mostly in children This epidemic was thoroughly studied and described by C B Leegaard[2] who pointed out that the epidemic spread along the main roads of communication, branching out to the sides with small groups of cases The invasion of the infection was supposed to occur through the alimentary tract, and the disease was pronounced contagious with a short period of incubation, hardly more than twenty-four hours Leegaard proposed that the disease be subjected to public control and be made reportable, he also proposed isolation for three weeks and subsequent disinfection Professor Johannesen,[3] in 1911, published a synopsis of twenty-three cases of infirmities resulting from acute poliomyelitis, observed at the pediatric clinic during the years 1893-1899

In 1903 and 1904, new, small epidemics occurred but, in 1905 and 1906, the disease broke out simultaneously in different and large tracts of the country In 1905, 952 cases were reported of which 358 were of the abortive type

The state physician for epidemic diseases, Dr Geirsvold, gave a preliminary report of the epidemic of 1905, he maintained that acute poliomyelitis was a specific infectious and contagious disease He further pointed out that great stress should be laid on the abortive cases and that the disease often was disseminated through the medium of healthy persons The disease left immunity, stricken districts were the next year exempt from its ravages It would spread from place to place, in the beginning often with influenza-like symptoms, later on developing into characteristic poliomyelitis, now and then accompanied by meningitis, abortive forms, Landry's paralysis, etc

Geirsvold also called attention to the fact that exposure to cold and damp weather with subsequent catarrhal conditions or physical overexertion would predispose to the disease He pronounced acute poliomyelitis infectious, with its point of invasion as a rule through the throat, the time of incubation, three to five days At the time of the epidemics he had not observed similar diseases among the domestic or other animals This short article by Dr Geirsvold on the epidemic of 1905 contains in brief the main features of what has been observed during the different subsequent epidemics In 1906, there were 466 cases with fifty deaths

Francis Harbitz and Olaf Scheel,[4] in 1907, presented a review of the epidemic in Norway in the years 1903-1906, inclusive They communicated the results of the careful anatomic examinations of nineteen cases Of the patients, thirteen, most of them children, died during the acute stage of the disease Harbitz and Scheel demonstrated a diffuse inflammation of the spinal pia-arachnoid, of the gray matter of the spinal cord and the medulla oblongata and the surface of the brain They again pronounced the disease to be specific, infectious and contagious, and entirely different from epidemic cerebrospinal meningitis, because it occurs at a different season, and because the virus occurs in the cerebrospinal fluid and membranes whence the cord and medulla probably are infected, further, that the infection enters the system through the digestive apparatus (the nose and alimentary tract) and that the central nervous system is infected either by way of the lymph-vessels, along the nerve-tracts, or still more plausibly through the blood Cases of neuritis or transverse myelitis were not observed in connection with the examinations

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[1] Bülow Hanson and Harbitz Beitr z. pathol Anat u allgem Pathol (Ziegler's) 1809 xxvi 517

[2] Leegaard C B Epidemisk poliomyelitis Bakteriologiske undersögelser Norsk Mag f Lægevidensk 1901 lxii 377

[3] Festschrift in Honor of Abraham Jacobi 1900

[4] Harbitz and Scheel Epidemic Acute Poliomyelitis in Norway in the Years 1003 1900 The Journal A M A, Oct 20 1907 p 1420

Leegaard, in a more extensive work,[5] has thoroughly described the epidemic of 1905 Here also the majority of patients were children, 50 per cent of the cases occurred in August and September, 25 per cent in July and October, and the remainder were distributed over the other months In the genuine poliomyelitis cases 14 5 per cent of the patients died and 58 5 per cent became invalids The disease this time also was disseminated along the main road of communication, along the coast by way of steamers, in through the country by the railroads The disease was contagious, especially during the first three days but also the following three weeks The time of incubation was found to be from two to three days as a rule The contagion was carried from person to person and also through the intermediary of healthy persons (infection carriers) and its mode of entrance was found as a rule to be through the nose and throat

During the four years following, the disease was on the retreat in 1907, 201 cases with 15 2 per cent mortality, in 1908, fifty-nine, in 1909, fifty-one, and in 1910, thirty-two cases Real epidemics did not occur, only sporadic cases or small endemics In 1911, however, the disease broke out with about 1,250 cases with about 10 per cent mortality Most cases occurred in July, August and September[6] The disease this time also was characterized by its wide dissemination, apparently without connecting links As a rule, though, districts which previously had been ravaged were now comparatively exempted The majority of cases were also now found in the rural districts, but several cases occurred in the larger cities — in Christiania there were sixty-two cases with twelve deaths During the first months of 1912 sporadic cases of acute poliomyelitis — 117 cases with five deaths — occurred The same year an extensive epidemic of several hundred cases of cerebrospinal meningitis infested Christiania and neighboring districts

II GENERAL EPIDEMIOLOGY

From the foregoing history it will be evident that acute poliomyelitis has been prevalent in Norway for almost a century, further that small epidemics have been observed and described for about forty-five years Consequently, we must assume that its virus has been constantly present in our country and if not active in the form of smaller or larger epidemics at least latent in many and different districts which again under favorable circumstances have been the starting-points for dissemination of the disease Only during the last twenty or twenty-five years have the Norwegian physicians collectively given much attention to this scourge and considered it to be of an infectious nature This was first pointed out by Bull in 1868, openly pronounced by Leegaard in 1889 and strongly advocated by Bulow-Hanson and Harbitz in 1898, culminating in the State Board of Health circulars of 1904 and 1905 with a view of checking or preventing the occurrence of the disease

The conclusions of the Norwegian physicians in regard to acute poliomyelitis are in the main that epidemic poliomyelitis is an acute infectious disease which as indicated by several observations, must also be considered contagious

The disease as a rule has started in widely separated smaller epidemics, somehow in an explosive manner in one or more places simultaneously, and without any apparent connection It has been observed regularly that cases of genuine poliomyelitis (with paralysis) Landry's paralysis with subsequent deaths and abortive cases have occurred simultaneously and in the same localities, but no cases of neuritis transverse myelitis or encephalitis

The abortive cases were characterized by a transient fever, pains in the extremities, back and neck, nausea and vomiting, increased reflexes, a train of symptoms which often were mistaken for those of a heavy cold or "influenza,' and so much more easily, as the symptoms quite strongly reminded one of the first severe epidemics of influenza or morbilli in previously uninfected districts

For the contagiousness of the disease there are different theories Even where the disease was greatly disseminated and single cases occurred simultaneously it could be determined by careful investigation that the disease had spread along the lines of communication, along the highways, railroads and steamship-routes, along the coast and into the fjords by smaller vessels from one place to another, but with different grades of velocity This would be particularly manifest in sparsely inhabited districts with poor communications Several reports pointed to small epidemics having started in schools, country stores dances public meetings weddings, funerals, or they could be traced to gypsies and other wanderers These obstructions strengthened the theory of a direct contagion In the study of virulent house-epidemics it was also found that one member of the family after the other became infected with a few days' intermission, and that they would exhibit the disease in its different forms As an example the following may serve

A physician treated some sporadic cases in his district in the latter part of June and the beginning of July July 14 he himself became ill with fever pains in the back great exhaustion diarrhea and vomiting He recovered in three days July 16 his son aged 3 was seized with the same symptoms July 18 his son aged [illegible] was stricken in the same manner He also recovered in three days July 22 his oldest son was taken with well defined [illegible] symptoms stiffness of the neck and paresis of the extremities and [illegible] He recovered in eight days with [illegible] permanent paralysis The following day his [illegible] the nurse and his wife and her sister were taken [illegible] acute angina stiffness of the neck and fever [illegible] neighbor's child who had been a playmate of the physician's children was stricken with symptoms of a [illegible] myelitis and with subsequent permanent paralysis

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[5] Leegaard, C B Vidensk Selsk Skr I Mathem Naturvid Kl, 1908 No 11 Kliniske og epidemiologiske Undersøgelser over den acute Poliomyelit i Norge med særligt Hensyn paa dens Forekomst i Aaret 1905

[6] Gram Tidsskr f d norske Lægefor 1911 p 808

When these cases are studied in connection with each other it seems reasonable to assume that here was a virus which easily and quickly spread from person to person

As an argument against the contagiousness of poliomyelitis it has been advanced that nurses who take care of these patients escape the disease This argument does not hold good, in a separate pavilion of the hospital for epidemic diseases at Christiania were several poliomyelitis patients during July, August and September, 1911 Two of their nurses, aged 28 and 29, became ill in the latter part of August and died with acute poliomyelitis They had served in this hospital-division for about one month The virus must, however, have been quite widely disseminated in this hospital, because in August there occurred among the children in the diphtheria pavilion four cases of acute poliomyelitis of which three were in the same ward In the scarlet-fever pavilion one case of acute poliomyelitis occurred in a child who previously had been taken care of by one of the two nurses who died from poliomyelitis, and finally a nurse who served in one of the medical sections of the same hospital took the disease and died In this last case it was impossible to trace the source of infection These cases which occurred almost simultaneously can be explained only by the existence of a direct infection and wide dissemination of the virus among adults and children

The time of incubation, according to Norwegian experience, has been quite short — two, three or four days, but at times longer Cases were observed in which a latent condition of the virus must be assumed An example of this is the case of a young woman who had been in solitary confinement for three months and had contracted acute poliomyelitis Hers was the only case inside the prison, and it is reasonable to conclude that she came to the institution already infected

The infection is as a rule carried from one person to another Of great interest are the abortive cases, which have been found to be just as contagious as the cases of well developed poliomyelitis It must be supposed also that the infection can be spread through the intermediary of healthy bacillus carriers who have had a latent infection not infrequently for longer periods Through this assumption is explained the extended time of incubation sometimes noted

According to our experience, the mode of entrance must be the throat, nose and alimentary tract

The degree of infectiousness as a rule may be designated as not so great This is proved by the fact that only one case might occur in one household or among a large family of children, several of these even sharing beds, further, by the fact that only sporadic cases would occur in a well-populated country district or even in a large city But here again we must take into consideration the fact that latent infection and lighter abortive cases have been much more widely spread, this has been proved by the fact that a district infected with sporadic cases or small epidemics the next year would be exempt from the disease

In Norway there is no safe foundation for the belief that foods might be the source of infection nor any support to the theory of a coexistent infection of animals and a conveyance of the infection through them Simultaneously with the poliomyelitis epidemics a great many deaths have occurred among animals, caused by epidemic diseases These have been prevalent among chickens reindeer, dogs and cats By further examination into these conditions any connection between the etiologic factors of the diseases of these animals and acute poliomyelitis has been disproved Experiments made under control have given the same results During the epidemics of 1911 with its unusually dry summer, masses of flies and other insects (fleas) were in evidence The possibility of an indirect conveyance of the infection by these insects (*see* Flexner and Lewis' experiments) may be admitted, but there is no proof or convincing examples of such occurrences

In the epidemiology of acute poliomyelitis are several unexplained points (1) its breaking out in great epidemics in certain years without reference to changed climatic conditions, (2) that most cases occur during the summer and fall and only sporadic cases during winter and spring, (3) that the disease is most prevalent in the rural districts, and, finally, (4) that the different epidemics vary in the degree of contagiousness and malignancy in the different years and in different localities

Such, however, is also the case with other diseases with well-known contagiousness as, for instance, epidemic cerebrospinal meningitis This disease, which also assumes an epidemic nature, has been known in Norway for a great many years, is found preferably during the cold season and has, according to our experience, clinically and anatomically nothing in common with acute poliomyelitis, and they must be considered as two specific, entirely independent diseases

III MEASURES AGAINST AND TREATMENT OF THE DISEASE

Recognizing acute poliomyelitis as an infectious, contagious disease, the chief medical officer of the National Board of Health on May 26, 1904, sent to all physicians of our country a circular directing that acute poliomyelitis should be classed with the epidemic diseases subject to public control In a circular of May 28, the same year, he further specified the measures to be taken

1 Immediate notification to the board of every case, abortive cases included, with a short history of the disease and its etiology

2 Isolation of the sick during the acute stage for three weeks

3 Careful disposition of the patient's excretions and secretions, particularly from the nose and throat The patient and everybody who came in contact with him were recommended to use gargles at regular intervals, consisting of solutions of potassium permanganate or hydrogen peroxid The sick should be furnished with separate dishes, handkerchiefs, pillowcases, etc, and anything soiled with secretions or excretions from the patient should immediately be boiled

4 Disinfection of everything in contact with the patient for a time of three weeks from the beginning of the disease

5 Particular attention given to the lighter abortive cases and patients with symptoms of angina, also to the possibility of the disease being carried through the intermediary of healthy persons

6 Attention paid to the possibility of infection through schoolchildren In much-infected districts it was recommended to close the schools, and healthy as well as sick children from infected homes were prohibited from appearing at school for some time

These measures received active cooperation from the local health boards of the infected districts The local board at times took even more drastic measures by prohibiting public meetings and vaccination during the prevalence of an epidemic As a rule those measures were undertaken too late when the epidemic was in full outbreak, but reports from districts, especially those more sparsely inhabited, and those where the measures had been early instituted, show that these precautions helped to limit and stop the disease. This again seems to point to the contagious nature of acute poliomyelitis.

The treatment of individual cases has been mainly symptomatic, and possibly not of much avail. Dr. Sinding Larsen[7] recommends that treatment begin with laxatives, for instance, calomel followed with urotropin (hexamethylenamin) in doses of 0.30 gm. three times a day, and good results have been given in some cases. Spinal puncture and aspiration of spinal fluid were recommended and have seemed to act favorably by mechanically lowering the cerebrospinal pressure. Prophylaxis in the way of careful frequent antiseptic gargles and sprays of nose and throat have been found useful.

Persons with abortive cases and supposedly infected persons are admonished to exercise particular care in avoiding exposures to cold and overexertion, which experience has taught can excite the disease, with subsequent paralysis. For the resulting pareses and paralysis massage, persisted in if necessary for weeks to years, has seemed to be of great value.

The medical authorities have demanded reports on the frequency and nature of disabilities resulting from the disease with a view of considering how steps can be taken to give these patients massage, surgical or orthopedic treatment at public expense. The preliminary report shows that following the epidemic of 1911 about 400 cases (32 per cent.) of permanent disability were recorded. Measures will now be taken to examine further into the degree of disability and to inaugurate suitable treatment of such cases. The chief medical officer of the State Board of Health on petition has been granted funds for the purpose of (1) systematic examinations into all the epidemics of late years, and (2) experimental research on apes to secure if possible a more thorough understanding of the modes of infection of acute poliomyelitis.

These investigations are conducted by the bacteriologist and sanitary inspector of the State Board of Health, Dr. Gram, Dr. Aaser, the chief physician of the municipal hospital for infectious diseases, and E. U. Hansteen, the prosector. No conclusive results have as yet been reached.

A CONTRIBUTION TO THE ETIOLOGY OF POLIOMYELITIS *

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The lesion of poliomyelitis confines itself mainly to the cerebrospinal system and produces focal clinical symptoms. This part of the human organism is rather remote from the external surface of the body and very tightly boxed in, as it were, and well protected from external influences. An infection, therefore, must primarily reach these tissues either through the circulatory or through the lymphatic system.

Experimentally, the disease was produced by injecting monkeys with the infected spinal cord and brain intracerebrally, intraperitoneally, by rubbing it into an abraded surface and an unabraded one of the nasal mucosa, into the nerve-sheath and finally by rubbing it into an abraded surface of the skin. It was further shown that the nasal mucosa contains the virus quite early in the incubation period of the disease—three days after injection of the virus—and that the tonsils, the salivary glands, the retroperitoneal glands and lung tissue are infected as well. There is unmistakable evidence that the pia of the anterior longitudinal fissure of the cord is the primary seat of the lesion and in my own two cases the pia surrounding the cord contained marked lesions while the vessels and gray matter were intact and the cases were of the abortive type. It is an established fact that, while a very small quantity of an infected-cord emulsion—0.1 c.c.—of a high strain is enough to produce the disease it would take a comparatively large amount of the blood-serum of the same animal—20 c.c.—to be effective. That the intravenous route of injection did not yield any good results so far is a very striking contrast to the uniform results obtained with the above-enumerated methods of experimentation.

From these facts we must conclude that the lymphatic circulation is the primary route and the circulatory system the secondary and, with the gray matter of the cord and brain, the coincident seat of the lesion. For this route of infection three avenues are obviously open, namely, the nasopharynx, the lungs and the alimentary canal.

It is true that in about 33 per cent. of the cases there are gastro-intestinal disturbances but we must not lose sight of the fact that the disease is an infantile one and is coming on during the summer months so that, aside from the fact that an infection of any kind is apt to produce a gastro-intestinal disturbance in any infant, there might be quite another cause for these disturbances, such as bad food or the swallowing down of the irritating nasopharyngeal discharge containing the virus. Experimentally, the disease was produced in one instance through the alimentary canal in the monkey after an opiate was administered to the animal so as to paralyze the peristaltic movements of the intestine, and in no instance was the disease produced by feeding the animals with the feces of poliomyelitic patients. Pathologic findings in the gastro-intestinal tract in my cases so far reported were negative. Thus the alimentary canal may be excluded as a focus of infection.

In some instances characteristic lesions of poliomyelitis were reported to have been found in the lungs,[1] but these were rather few and since the nasopharynx, according to my theory, is the point of entry for the virus, it would seem to be a striking coincidence which after all might be accepted as a further proof of my theory.

The nasopharynx is then the only avenue left and now we are facing the problem, the first phase of this paper, the mode of infection.

For a period of eleven years I have had the opportunity to examine schoolchildren of ages from 6 to 14 years. I have noticed that between the ages of 5 and 8 years there are present hypertrophied tonsils in 85 per cent. of the children examined, but as we go up in the age scale, even at 14 we find only about 15 per cent. of the children with hypertrophied tonsils. The question [illegible] naturally arose, what has become of these tonsils? My explanation is that these children of from 5 to 8 years of age are forced to breathe the air nearest to the ground, which is more full of solid particles than the upper strata of atmosphere, and that these solid particles are constantly irritating the nasopharynx and producing the condition described As the child grows taller and is inhaling air of a lesser density, so far as dust particles are concerned, the irritation subsides and the tonsils atrophy

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[7] Larsen: Tidsskr. f. d. norske Lægefor., 1911.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] [illegible]

Since poliomyelitis is preeminently an infantile disease, occurring in the dry season, since no particular neighborhood or character of the living premises plays any material part in the spread of the disease, since several children in the same family may be attacked successively and since in a given house children are attacked in different families in fairly quick succession and along lines of neighborly communication, I have concluded that the virus probably lurks in the dust and the nasopharynx must be the point of entry That the lymph-current is the avenue of transmission strengthened my theory

In the early part of 1910 I began my experiments to prove this theory The experiments were fully published,[2] but I shall take the liberty of giving a cursory review

Sweepings of rooms where cases of poliomyelitis occurred, together with the dust accumulated on wooden trimmings of rooms, were collected and prepared for injection in the following manner The samples of sweepings were macerated in sterile water for a number of hours, the menstrua were filtered through paper and then through a Berkefeld and French bouge porcelain filter, respectively These filtrates were then injected intracerebrally, intraspinally and subcutaneously into monkeys Two of the monkeys had abortive attacks, as subsequently proved by clinical symptoms and pathologic findings One monkey injected with the extract of the dust of a very severe case had all the clinical features and pathologic lesions of poliomyelitis An emulsion of the brain and cord of the infected monkey was injected into two other monkeys and both animals showed the clinical symptoms and pathologic lesions of the disease after an incubation period of seven and fourteen days, respectively As a control four other monkeys were injected in the following manner One animal was injected with sterile water a second one with normal salt solution, a third one with an extract of dust from two different rooms in two different houses where no case of poliomyelitis occurred, prepared in the same manner as was the dust of all other rooms where cases of poliomyelitis occurred The sterile water as well as the salt solution were passed through a Berkefeld filter before injection The fourth monkey was injected with an extract of the brain and spinal cord of a normal monkey All the four monkeys remained well and are well to day after the lapse of five months Another monkey was injected with a five-months-old emulsion of a poliomyelitic monkey which was kept in a refrigerator This animal was quite ill after seven days but fairly recuperated A month thereafter it was killed and we found the characteristic lesions of poliomyelitis in the surrounding pia of the cord, but the vessels and to an extent the cord-substance were intact This monkey evidently had an abortive attack It is pertinent here to remark that not all the monkeys contracted the disease I have thus proved the theory that poliomyelitis virus lurks in the dust of the sick-room, and we may also conclude from the above experiments as well as from the heretofore-enumerated deductions that the nasopharynx is the point of entry

While my experiments with nasal discharges of patients suffering from poliomyelitis and the experiments of Strauss and Rosenau were positive failures, Kling, Wernstedt and Pettersson[3] were more fortunate in their work They have succeeded in demonstrating the presence of the virus in a viable condition in the nasal, buccal, tracheal and intestinal mucus in nine fatal cases of poliomyelitis and in twelve out of thirteen living patients suffering from the disease Their work was well controlled and their results are of a most convincing nature

This is certainly the last and most complete link in the chain of my theory and I dare say that the most skeptical hypercritic must admit its validity

THE MANNER OF DISSEMINATION

The manner in which the virus finds its way into the dust is no longer pure conjecture The nasopharyngeal discharges are certainly the medium of the transfer of the virus into the atmosphere in the same manner as the bacillus of tuberculosis Once in the atmosphere the virus may be disseminated in the following manner (1) by direct contact, (2) by healthy carriers, as human beings, on clothing or by domestic animals, (3) by winds scattering the dust, (4) by bathing in stagnant water in an infected neighborhood

These propositions are practically illustrated in the report of 150 investigated cases of poliomyelitis by Robert W Lovett[4] which occurred in 142 families

> The evidence of communicability in our series of cases is a very important matter We had instances of direct contagion from child to child, with an incubation period of from one to fourteen days We had a number of instances of what appeared to be indirect contagion by a healthy carrier, and finally we had eleven instances in the 150 cases in which the disease followed intimate contact with persons with old infantile paralysis often of many years standing Instances of what would appear to have been contagion occurred in thirty five out of the 150 cases Of the 150 patients sixty two were swimming or wading in stagnant water just before the onset

A German observer found the disease in an unduly large proportion of shoemakers' children, who were much in the shops where the dried dust was flying about Then, again, the disease is most prevalent along the course of railroads up to within a mile of them, as is well illustrated in Table 1

TABLE 1—RELATION BETWEEN DUST AND POLIOMYELITIS AS OBSERVED BY LOVETT AND RICHARDSON AND A E SHEPARD

LOVETT AND RICHARDSON*		A E SHEPARD†	
Amt Dust	No Cases	Amt Dust	No Cases
No dust	0	No dust	0
Very little dust	20	Moderate amount	112
Much dust	118	Much dust	81
Moderate amount	105	Excessive amount	7
Excessive amount	8		
Total	350	Total	200

* Lovett and Richardson Ann Rep Mass Board of Health 1911 p 83

† Shepard A E Ann Rep Mass. Board of Health 1911 p 115

Some English observers have lately reported substantially the same results

Thus we have reached the third part of the paper

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[2] Neustaedter and Thro New York Med. Jour Oct. 21 1911

[3] Kling Wernstedt and Pettersson Ztschr f Immunitätsforsch 1912 xii 316 596

[4] Lovett R W Pediatrics 1910 xii 574

A NEUROPATHIC CONSTITUTION NECESSARY IN THE ETIOLOGY OF POLIOMYELITIS

It is a significant fact that while the disease is highly contagious and infectious, and, as shown by me, the virus is found to be in a viable condition in the dust of the sick-room, yet we find, comparatively speaking, few cases of infection during an epidemic and in rare instances more than one case in a given family reported In hospitals where patients with poliomyelitis were confined no case of infection by other patients has been as yet reported, with the exception of one case in a Massachusetts hospital

TABLE 2—FAMILY HISTORY IN THIRTY ONE CASES

Case	Name	Age	Family History
1	N N	2 years	Father has tabes
2	J K	4 years.	Mother s only sister has chorea
3	C S	3 years	Mother neurotic
4 and 5	F	6-8 years respectively	Father highly neurotic paternal grandmother died insane
6	N F	2½ years	Mother neurotic.
7	J F	3 years	Mother epileptic father alcoholic.
8	S R	3 years	Mother had eclampsia (puerperal) is constitutionally inferior
9	C W	3 years	Negative.
10	M B	3½ years.	Negative
11	S S	4 months.	Father highly neurotic paternal cousin had poliomyelitis
12	F L	3 years	Mother neurotic.
13	W case	2 years	Mother insane
14	J S	1 year	Mother s sister epileptic
15	[illegible] N	1 year	Maternal cousin has chorea.
16	C K.	1 year	Father s sister and aunt insane
17	C K	¼ year	Father s mother became suddenly deaf mute and blind and died of apoplexy
18	I C	1 year	Mother's aunt paralyzed
19	G W	5 years	Mother epileptic.
20	L G	1 year	Mother neurotic maternal cousin had poliomyelitis
21	J L	2½ years	Father neurotic two of his cousins have poliomyelitis and other cousin has Little s disease
22	G K	1 year	Maternal second cousin epileptic.
23	J F	1 year	Negative
24	F C	1 year	Mother neurotic maternal aunt has chorea and cousin has poliomyelitis paternal aunt has chorea
25	S L	8 months	Negative
26	I F	2 years	Maternal aunt insane.
27	I G	1 year	Mother neurotic paternal aunt insane
28	C K.	8 months.	Father suffers from general paralysis of the insane
29	C S	4 years	Negative
30	H W	2 years	Maternal cousin has poliomyelitis patient fell same day before the onset of fever injuring his back
31	C W	2 years	Negative received a blow on the spine on the day of the onset of the fever
32*	S L	2 years.	Maternal cousin suffers from some nervous trouble
33	L E	2 years.	Maternal aunt insane
34	I R	10 months	Paternal aunt imbecile
35	S L	[illegible] months	Mother neurotic sister has chorea
36	S M	2 years	Brother has infantile cerebral palsy
37	J McB	4½ years	Mother neurotic
38	[illegible]	1¼ years	Paternal grandmother was paralyzed in all four extremities.
39	M B	4 years	Maternal cousin died in convulsions.

* Cases 32 to 39 have been investigated since the reading of this paper

This pertinent question has stimulated me to inquire into the histories of my cases with the greatest care Although I have complete histories of only thirty-one cases I regard the facts elucidated is something more than a mere coincidence I found that in a vast majority of my cases there is a hereditary weak point, a focus of minor resistance, a predisposition in the cerebrospinal system, which causes it to give way under certain favorable conditions In other words, the virus of poliomyelitis must have a fertile ground on which to thrive and because, fortunately, there rarely is such a predisposition, we have, comparatively speaking, so few cases

Tuberculosis, it seems to me, would offer an ample analogy Here we also have the virus in a viable condition in the dust and atmosphere of our homes, of vehicles of transportation, of hospitals, everywhere, and yet not everybody contracts tuberculosis It certainly is an accepted fact to-day that we must have a hereditary or acquired predisposition as a primary condition in order that the tubercle bacillus may exhibit its baneful influence on the tissues

In Table 2, of thirty-nine cases, we find thirty-three with hereditary taint, a neuropathic constitution, and six negative While I do not desire to draw conclusions from so few cases, I believe the histories of these cases are significant enough to stimulate investigations along these lines

METHOD OF PREVENTION

At the present state of our knowledge or rather ignorance of the character of the virus and our inability to diagnose the disease before the onset of the paralysis a curative measure is not to be thought of One familiar with the pathology of this disease will certainly realize the truth of this statement

But measures of a prophylactic nature to prevent the spread of the affection may be instituted with a fair degree of success These must be carried out with a view of eradicating the causes above enumerated

1 The streets of a neighborhood where cases occur ought to be thoroughly washed and oiled daily

2 The floors and trimmings of an apartment where a case occurs must be scrubbed daily with an antiseptic solution

3 Everyone occupying this apartment should have his nasopharynx sprayed with hydrogen peroxid to be followed by a spray of salt solution This procedure applies equally to the patient

4 A strict quarantine should be maintained for at least two months

5 Bathing in stagnant water in a neighborhood where a case occurred should be prohibited, as well as playing around sand heaps

6 Domestic animals should be thoroughly disinfected, thoroughly bathed and scrubbed with an antiseptic solution, and removed from premises

111 Second Street

ABSTRACT OF DISCUSSION

DR C L DANA, New York We neurologists need particularly to have a little more knowledge of methods of preventing this disease Dr Neustaedter has given methods of prophylaxis, but I think his formulary would hardly apply in all regions You cannot wash domestic animals, such as the cow and horse and hens, and you cannot oil all streets, his suggestions are counsels of perfection which cannot always be reached But there are various measures which I think ought to be more or less standardized by this time It ought to be one of the functions of this section, it seems to me, or of neurology in general, to help formulate definite and well adjusted measures of prophylaxis I know that has been done by the Public Health Service and by various state boards of health, but they all differ a little and no one of them is very satisfactory

DR. TOM A. WILLIAMS, Washington, D C I have written a paper attempting to explain on the grounds of localized anaphylactic reaction and the chemotaxis of the unknown particular noxa of poliomyelitis, the reason for the incidence of this condition on certain different parts of the nervous system in different cases In 500 cases, which we had in Washington two years ago, we did not find the biologic factor of nervous heredity which has been so conspicuously presented just now by Dr Neustaedter, although his cases are most striking in that regard It may be that they are coincidental, because in the New York epidemic I do not think that the same remarkable association was ascertained It would seem *a priori* that a general susceptibility of the nervous system to such very different disorders as were described in the paper should not predispose to attack by this infection, which is of mesoblastic type It is not a nervous disease at all, it is a vascular lymphatic disease, and the nervous structures are affected coincidently on account of their situation relative to the vessels which are more particularly conveyers of the contagion Besides which the contagion has been found in very different organs to those of the central nervous system

With regard to the mode of prevention, we are hopelessly at sea when we consider that one case in a district will not convey the disease to children in intimate contact, when we consider the extreme rarity of hospital infection and when we consider the extraordinary leaping of the infection from case to case in the large epidemics The measures advocated by the various health boards seem to be more or less in the air Recently I have seen allusions made to the bedbug as a source of the conveyance of the disease, and that is worth keeping in mind in our research, but we failed to obtain data from patients or physicians in Washington in that respect during our research in 1910 (*Washington Med Ann*, May, 1911)

Dr Albert E Sterne Indianapolis The peculiar regularity that we see in the manifestations in different individuals within the epidemic or endemic zone is interesting, it is notably the fact that there are many cases, relatively speaking which do not show the full fledged typical picture of what we have been commonly calling acute anterior poliomyelitis There are many cases now on record, and we have all of us seen them probably, in which the polio encephalitic inferior type is shown without the myelitic type prevailing Again, the peripheral type shows occasionally in a very mild form Last year we saw a number of these cases in Indiana, in which there was unquestionably in play the epidemic endemic type of poliomyelitis but in which the manifestations were extremely mild, and I discovered these milder cases, on the one hand, and the severer cases, with extremely rapid course on the other, as also the upper medullary type in the same epidemic These cases are a possible danger to the community, because they may not be recognized and hence not reported as epidemic endemic poliomyelitis

Dr A L Skoog Kansas City Mo The nasopharynx is undoubtedly a source of infection but I do not believe that it is the only source Dr Neustaedter mentioned the fly and other insects as possible carriers some work has been done along that line, and it is possible that the fly may be a carrier I agree with him about these epidemics following railroads I have observed that point during my work of the last three years, and I think that holds true also in epidemic cerebrospinal meningitis I do not agree with the idea that the disease attacks those of hereditary neuropathic tendency more than others I have seen over a hundred cases during the past three years, and many of them I have had opportunity of studying rather closely in the families having been sent out by the Kansas State Board of Health through the state and mingling with the relatives as well as the patients, and I do not believe that there is any more heredity among these families than among the average of people that you see If we take the statistics of New York state I believe the number of mental defectives is about 1 in 100 If we accept that percentage and look up the families we will probably find very few families in the state of New York that are not tainted a little Possibly in the far West or in the West that does not hold as it does in the effete East

A number of boards of health as well as the Public Health Service have given out instructions as to how to prevent poliomyelitis, they do not agree entirely, although they do agree in the main, and the point which Dr Dana made about difficulty in carrying out all these fine points in prophylaxis is well worthy of consideration

Dr M Neustaedter, New York If we can afford to oil streets for automobilists we can afford it for little children The oiling and washing of the streets has been practically demonstrated to be of great value in the late epidemic in Massachusetts, where they have proved that in neighborhoods where the streets are thoroughly washed and oiled the epidemic stops In Cornwall England, last September, as stated in the *British Medical Journal*, an epidemic was stopped in one week after the roads were thoroughly washed It is not a question of washing away or killing the germs, but of keeping down the dust and thus keeping down the germs

Of course, statistics do not always tell the truth, and I have not attempted to draw any conclusions from so few cases I have merely pointed out that it might not be simply a coincidence, and it is worth while to inquire along these lines I have simply indicated what I found Dr Skoog's remarks on tainted families in New York I would not criticize, but I would insist that we have just as few tainted families here as in the West

I have spoken of the age in school children with respect to tonsils, merely as indicating one of the reasons which brought to my mind why poliomyelitis attacks mainly little children, and I have simply drawn an analogy that as these 5 and 6 and 7 year old children are condemned to breathe an area of *atmosphere full of dust so these little tots are condemned to breathe the area of dust when walking below* So it seemed to me that the dust was propagating the disease

MEDICAL SOCIOLOGY IN CIVIC BETTERMENT *

OTTO P GEIER, MD
CINCINNATI

About six months ago at a meeting of the National Municipal League at Richmond, Va, I heard an interesting paper on "Economy and Efficiency in Health Administration" by S M Gunn, professor of sanitary biology and public health at the Massachusetts Institute of Technology Professor Gunn rather severely and perhaps justly criticized medical health officers of the present day and then proceeded to prove that trained sanitarians should hold these positions He said

> Apparent economy may be attained by an untrained man, but in most cases true economy, combined with efficiency, can not be had unless the health administration is in the hands of an individual thoroughly trained in the sanitary arts It cannot be expected that any one who has not received special training or who has had merely the few hours of hygiene allotted to the subject in a medical school curriculum, is the proper person to be put in charge of the public health activities of a community The first essential for any city which is honestly seeking to maintain a health department of real value is to secure the services of a trained sanitarian *There is no alternative in this matter*

In concluding, Professor Gunn stated that if health departments are to be economical and efficient, we must free them from politics with its accompanying uncertainties and strife

In the discussion which followed, M N Baker, editor of the *Engineering News* further read the death warrant of the medical health officer when he said

> The question is how and where to get trained men for the work The training of even the best medical schools is not in *the direction of public health work* *We are not how*

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June, 191[illegible]

> ever, so badly off as might be thought, because some of our best technical schools, through their courses in sanitary engineering and in sanitary biology and chemistry, are turning out men who are much better qualified to take up the work of the health officer than are those who are the graduates of medical schools. Already a number of cities are employing engineers as health officers. When doctors are employed, we find either a poor weakling of the medical profession, who has been given his office out of pity or political favor, or else an ambitious young man who is taking up the work while trying to build up a medical reputation.

I have quoted the above arguments at some length because of their authoritative source and because it so aptly illustrates a tendency of the times which is not only to belittle the past attainments of medical men as health officers, but also to discount their ability to handle the problems of to-day and the future. I challenge these statements. These biologists and engineers have apparently forgotten that the tremendous advances in sanitation and hygiene of the past decade have come with physicians generally in charge of all health work, that this progress has been made in spite of the fact that politics has more or less pervaded all health administrations. They themselves assert that even the sanitary engineer can succeed only when the department is freed of politics. Have they not also forgotten, among other things, that it is a physician who has made possible the greatest engineering feat of history, the digging of the Panama Canal, after French engineers had failed because of their lack of knowledge of sanitary laws?

That the municipality to-day needs the services of a sanitary engineer is not to be denied. It also needs food inspectors, chemists, bacteriologists and veterinarians, but to obtain the best results from all these the municipality needs a highly qualified physician in charge, to direct and coordinate their work. The question is not one of the ability of a medical health officer to handle the work, but rather the failure of communities to recognize the importance and the necessity of putting the best available physician at the head of it and giving him sufficient power to follow his ideals. Has not the fact also been overlooked in the discussion of this subject by the biologist and engineer, that it is the medical profession which has created the field of the sanitary engineer?

The sanitary engineer demands good pay, and in criticizing health officers as a class, forgets that thousands of medical health officers have been serving without pay or for some pitiful sum in the great bulk of the lesser communities. Has not this unselfish work been the very inspiration, the energizing force in communities which has finally stirred them to an appreciation of the value of preventive health measures? There is hardly a city of any size in which the physicians have not led some movement for health betterment and by such movements educated the public and eventually forced city officials to improve health administration.

HEALTH PROPAGANDA IN CINCINNATI

Cincinnati can be quoted as perhaps the most notable example of such evolution as regards her health department. All the governmental functions of our city had been in the grip of an almost invincible political organization, the Cox ring, for nearly two decades. So compact was their organization, so complete their control, that it held in terror not only the public service corporations but our so called "best citizens." This organization, of course, controlled the health department and usually selected a fairly well known physician as health officer and thus placated the public. The organization controlled all the appointments under him. The medical officer accepted the seemingly inevitable and did the best he could under the circumstances.

Cities are said to gain little from spasmodic reform, but let us see how the medical profession of Cincinnati made use of their one opportunity. In 1905 the Cox ring was defeated and the newly elected mayor selected as health officer Dr. S. E. Allen, a man of no experience in health affairs, a specialist, in fact, but a man above all things honest, fearless and with a broad social outlook. He appointed equally fearless men as his chief meat inspector and chief milk inspector. In attempting to carry on their initial inspections these men met with all sorts of obstacles, to say nothing of attempted bribery. The published annual reports of their predecessors had stated that everything was in fine condition and yet Cincinnati was experiencing the second highest death-rate from tuberculosis in the country and its infant mortality was frightful. Now Cincinnati began to know the truth about her dairies and slaughter-houses. The findings of the inspectors were amazing and our new health officer began to visit the dairies himself. Federal officers stated that our dairies were indescribably filthy and "the worst in the country."

The practice of feeding wet distillery waste to cows had become universal and had produced a low type of city dairy. The health officer, recognizing that this style of slop feeding was responsible for the low standards of the dairymen, attempted to stop the practice by legislative action of council. The distillers with their tremendous influence and big fortunes, by injunctions and otherwise temporarily delayed progress and so this efficient health officer sought other means of helping the situation. A medical milk commission was organized in May, 1906, by the county medical society, and fortunately so, for it was this body which continued the fight for clean milk when on the following December our courageous health officer lost his position through the return to power of the Cox organization. Now we could hope for nothing locally, and so the next month a bill was introduced in the state legislature forbidding the sale of milk from cows fed on distillery waste. By this time the milk commission had introduced the production and sale of certified milk, and through publicity had gained the public's confidence. For the next three months a terrific battle was waged between the medical milk commission, fortified by the valiant ex health officer on one side, and the distillers on the other. The distillers' efforts were strengthened by the former milk inspector, who had now regained his position. It was a battle royal, not confined to Cincinnati, but carried to the state capitol. The milk commission desired the endorsements of the several civic organizations and secured them too, but not until the controversy threatened with disruption the most powerful of these organizations, in which the whisky interests represented over one-tenth the membership and perhaps one half the moneyed interest. Yet although the directors of this club were threatened with wholesale resignations if they endorsed the pure milk bill, they stood their ground. When the bill finally became a state law, the Cox board of health refused to enforce it. The milk commission now began legal prosecutions under the law and waged such a forceful campaign for a new and non partisan board of health that the Cox organization realized the futility of further antagonizing public sentiment. In August 1909 the council organized a board of health along ideal lines, with the terms of the members so overlapping that a definitely constructive and continuous policy has been possible ever since We now feel that the great difficulties encountered at the outset have proved our greatest blessing in that every good citizen became acquainted with the real issue during the long-drawn-out fight A definite public sentiment was crystallized in favor of clean health administration which will resist the attempts of any political organization ever to interfere with our health department affairs

Our health officer and his force now, for the first time in our history, give full time to the service, and Cincinnati is rapidly reaching a place where its department of health will court comparison with the best in the country This detailed recital is made to show that a few determined physicians can withstand the strongest political organization even when it is allied with "big business," and thereby accomplish much for the cause of good government as well When the Cox machine was overwhelmingly beaten in the mayoralty campaign last fall, it was freely stated that the health department fight had contributed not a little to the organization's disruption, in that it had made new lines of cleavage in political ranks heretofore absolutely solid It was probably more than coincidence that our new mayor, Henry T Hunt, was the very representative in the state legislature who had brought to a successful issue the fight for the pure milk bill several years before

Now let me add that it was not a "trained sanitarian" who started the revolution in Cincinnati health affairs, but just a plain medical man with a professional sense of duty, coupled with a broad social point of view Cincinnati's experience can be duplicated in any other city if the medical men will fearlessly oppose the injection of politics into health affairs

Another interesting fact in connection with this campaign is that city administrations are now very generous to the health department In 1911 the health department secured an increased budget of 8 2 per cent over that of 1910, and in 1912 an increase of 13 2 per cent over 194 Let us see whether this struggle was worth while

INCREASE IN EFFICIENCY OF CINCINNATI HEALTH DEPARTMENT

	1910	1911
Expenditure	$72 401 51	$78 902 19
Dairies under inspection	about 350	3 500
Dairies in Class A	1	58%
Average bacteria per c c	5 700 000	770 000

Decrease in mortality in infants under 2 years of age from diarrheal diseases in 1911 over 1910 28 6 per cent (100 infants)

The first inspection in 1911 of the plants of wholesale milk dealers showed the following

Equipment 12 9 Methods 18 6 Total score, 31 5

The last inspection showed

Equipment 23 9 Methods 36 6 Total score 60 5

The first inspection of retail milk dealers in 1911 showed

Equipment 17 6 Methods 26 4 Total score 44

The last inspection showed

Equipment 29 1 Methods 38 3 Total score 67 6

SUMMARY

	1910	1911
Dairy inspections	1 636	5 803
Milk depot inspections	79	815
Store inspections	244	9 150
Total	1 959	15 838

Increased efficiency of milk inspection 707 per cent. over 1910 increased cost, 7 per cent.

MEAT INSPECTION

	1910 Part Time Force	1911 Full Time Force
Veterinarian in charge	1	1
Butchers	7	0
Veterinarians	0	7
Value condemnations	$3 248.50	$9 564 00
Other foods condemned	3 747 20	28,018 55

LABORATORY

	1910	1911
Medical examinations	3 785	4 227
Chemical milk examinations	3 679	8 256
Bacteriologic milk examinations	70	1 487
Cream and ice cream examinations	0	65
Water examinations	27	214
Miscellaneous foods and special analyses	0	108
Total examinations	7 651	14 357

PREPARATION FOR THE OWEN BILL

The active campaign in Cincinnati for a non-partisan board of health drew the attention of the citizens to the value of effective health administration You may believe that our representatives in Congress will be found supporting the Owen bill Our congressmen know the public's attitude in Cincinnati and they will show no fear or favor when the bill is at issue Were such preliminary local effort and accomplishment more general there would not be the situation that now exists in Washington In their efforts to pass the Owen bill the profession is being forced to overcome the protestations of a horde of moneyed lobbyists, agents of greedy "big business" whose sale of impure foods or drugs may be threatened They must also overcome the influence of those parasites of the poor unfortunate and sick — the patent medicine fakers These pirates are viciously but adroitly aligned and befronted with that misleading and misbranded organization, the League for Medical Freedom When the American people come to recognize the evil of decentralization of health control, when they understand the high purposes of a federal board of health, they will demand that they be protected by such a board Unfortunately for the movement, the public does not understand how unnecessary was the terrible loss of life and property in San Francisco in 1900 and in New Orleans in 1905 Political control of health administrations, coupled with stupid business, cost thousands of lives and millions of dollars following uncontrolled epidemics of plague and yellow fever We need the federal board to perfect local health administration, we need it to bring about intercity and interstate cooperation and coordination If you desire then to engage in a national health propaganda, begin your education in your own home towns

MEDICAL WORK AND SOCIAL SERVICE

Public health and charity work are closely allied I believe the statement will go unchallenged that an intelligent physician, by previous training and service, is best qualified to consider social service endeavor from the broadest point of view, yet comparatively few are found in the ranks of the social workers who are to-day attempting to solve the many difficult problems that have arisen in congested cities As a partial recognition of the foregoing fact, a new committee has been appointed which will make its report at the National Conference of Charities and Corrections in Cleveland in June This committee reports on "The Relation of Medical and Social Work," and in its seven subcommittees will consider this interrelationship under the following topics hospital social service, visiting nursing, industrial diseases and accidents, infant mortality, blindness, insanity and epilepsy, tuberculosis, syphilis, hookworm and alcoholism, sex hygiene, including subject of sterilization.

The wide field of social betterment, with its medical, hygienic and economic background, is one that is familiar to the physician and rather difficult of comprehension by the lay social worker, and yet by a strange transposition of interest and affairs the lay mind, instead of the medical mind, is grappling with these problems The same criticism might be applied to a large part of the social worker's program

As further evidence of this I submit to you a few excerpts from a recently published statement by Sara E Parsons of the Massachusetts General Hospital, an expert in the social service field, in which she attempts to outline for college women the necessary preparation for social work

She first suggests that the college graduate, as a preliminary, become a graduate nurse, or, as an alternative, on the assumption that this graduate from a girls' college has studied anatomy, physiology, hygiene, bacteriology and chemistry, she ventures to outline a program in preparation for social work as follows

Actual nursing	2 months
Obstetrics infant feeding etc	2 months
Child nursing	2 months
Dispensary work eye ear nose and throat	2 months
Dispensary work tuberculosis home visits	2 months
Dispensary work nerve clinic	2 months
Field work	2 months

This involves a program of eighteen months of study, to which she would add one year in the theory of social service, all of which totals two years and a half of study

Does not all this suggest that the profession is failing to cover a field of activity which is properly its own? Does it not indicate that the medical colleges should meet this demand of the new social order of things and supply the fraction which is lacking to make of their graduates social workers as well as physicians? Even if comparatively few entered the field, would it not so broaden the social outlook of the graduate as to make of him a better physician? The mere insertion of such a course, premedical or elective, would help materially in supplying the great demand of to-day for competent social service workers There is even greater demand to-day for competent physicians, with a decent social outlook, to take administrative positions in charitable and social service work — the large offset to the ever-narrowing field of the physician resulting from preventive medicine A few medical colleges have seen the need for a postgraduate course in preventive medicine, and in the near future we can hope to have a supply of trained men for health department work

COOPERATIVE MEDICAL TEACHING

The Medical College of the University of Cincinnati has recognized the trend of public affairs and is better preparing its graduates to solve the problems of sanitation and hygiene in their respective communities This university has established a cooperative course in preventive medicine by placing its students directly in the field of health department activity In his junior year the student divides his time between active service in the board of health work and the regular work of the medical college The groups of students are assigned to the health department to do chemical and bacteriologic work, examinations of milk water, and testing for typhoid, tuberculosis and diphtheria To this are added food, dairy and bakery inspections as well as school inspections and fumigation In fact, every activity of the board of health is taken part in

This cooperative plan of teaching hygiene and sanitation in the University of Cincinnati has proved valuable to the students as well as to the health department It has stimulated better work on the part of the inspectors The student becomes more interested in his work as he realizes the relative importance of facts and conditions observed Thus the graduates of this college will come to realize the practical importance of municipal health work They will be more useful advisers to the smaller communities in which they enter practice and will be most helpful in creating a spirit of cooperation between the medical profession and the medical health officer As a result greater progress will be made in preventive medicine and public health

PRODUCT OF PUBLIC INSTITUTIONS

The physician enjoys the most direct approach to the public and it is his duty to crystallize a public sentiment that will be appreciative of the tremendous advantages of hygienic living It is also his duty to lead the way in insisting that public institutions be conducted in a humane and intelligent manner In viewing the problems of the city's dependents he readily supplies the scientific background He should know of the neglect that is usual in the care of indigent adults in almshouses He should appreciate the menace of the feebleminded outside the confines of an institution He recognizes some of the causes, at least of insanity and could be helpful therefore in its prevention He should be the court of last resort to determine the admission or non-admission of the sick and afflicted to institutions, and lastly, he should be best qualified to judge wisely the problems involved in child welfare work

INDUSTRIAL HYGIENE AND THE PHYSICIAN

Leaving the field of public charity and institutional work there is the almost undiscovered one of improving the industrial life and activities of the wage-earner It remains for the physician to prove to the capitalist that shop sanitation is a factor in industrial efficiency and that it pays fully as well to conserve the health of the human operator, as it does to reduce the number of lost motions by "scientific management"

The capitalist must be shown (1) that industrial hygiene induces a better personal hygiene, which in turn energizes the employee, (2) that efficiency of mind is affected by home and shop conditions, (3) that its ultimate result will be to keep busy many a machine now idle because of the preventable illness of the employees manning these machines, (4) that a better appreciation of the value of good health for itself will alone raise the standard of efficiency of any workman (5) that improved personal cleanliness and better health make for a greater self-respect in any individual and tend to improve his family relations, (6) that betterment of civic health makes for happier homes, and healthy and happy homes are fundamental structures on which the commercial advancement of any city must largely be built

In business life the brains and the energy of the American have astounded the world The more intelligent captains of industry are now busily at work helping to improve industrial conditions, and are thereby solving some of the social problems *In many factories social* service departments are being instituted in charge of physicians The machine tool industry in Cincinnati was influential in having the board of education take over the continuation schools previously conducted by them in their plants and permanently incorporate them as a part of the school system This same group of men also saw the wisdom of cooperating with the dean of the engineering department of the University of

Cincinnati when he proposed to establish the first cooperative course of engineering, in which the student spends one week in the university and the next week in the shops Besides increasing the efficiency of the graduate, this plan has a social phase in that it enables the student to earn his living while getting his education

THE MEDICAL MAN IN THE NEW SOCIAL ORDER

The physician to-day does not occupy the exalted position that I would covet for him, partially because of a false sense of professional etiquette which has kept him from taking an active part in political affairs The physician whom the public has generally seen in public positions is the "political doctor"—a man of no high standards, moral or professional—and this man has substituted in the minds of the people his standards for those more ideal ones of the profession

The criticism that I direct at the medical profession is born of the hope that the members of the profession may be awakened to a sense of their real power, their great influence, their moral obligation and their greatest opportunity, that of serving all the people They must align themselves with the modern idea of community life "the whole for every man, and every man for the whole"

The appeal is likewise born of the belief that this, the noblest profession, in so widening its scope, is serving itself best, in so doing it is coming back into its own heritage, that of enjoying the respect, the admiration and the unbounded confidence of the American people, without which we must fail in accomplishing our highest mission

This democracy of ours offers to us possibilities for growth and extension of propaganda not enjoyed by the physicians abroad, where the profession and health officials are bound about by tradition, official life and red tape unknown to us Our opportunities for progress are greater, our responsibilities and obligations are likewise the greater

The medical profession, scientifically, is rapidly placing itself on a par with the profession of the older countries We have the knowledge to take up the tasks of preventive medicine and sociology in this country, and the opportunity is ours If we but supply the necessary interest and energy, public welfare work in its broadest and truest scope will go forward by leaps and bounds There will grow alongside of it and directly out of it a higher sense of public duty, a more ideal and unselfish citizenship—a citizenship that will more fully realize its deep obligation to the medical profession, and in this mutuality of confidence and regard the medical profession will take a new and higher place in the community and will receive rewards not yet dreamed of

Physician, "know thyself'—know thy strength, thy power, thy scope, physician, "heal thyself" of a contracted vision as to thy field of usefulness From the ranks of thy profession must be developed the true "social engineer" to lead in the present world movement for social improvement This social engineer will find his life—the extension of the humanities, his hope—the prevention of life waste, his work—service to mankind

1609 East McMillan Street

ABSTRACT OF DISCUSSION

Dr. C Hampson Jones, Baltimore I have voiced these views for some time, in a very limited sphere In our annual report I have insisted that the commissioners of health must largely become sociologists That is particularly true in obtaining death rates and the cause of death rates, obtaining the birth rates and the cause of the low birth rates, the study of infant mortality, and so on, by taking special census of the cities into which you go, but you can inject the social workers directly connected with the health department, or members of independent organizations that can and will work in harmony with the health department

Dr. M P Ravenel, Madison, Wis I would be the last man to belittle the service of trained sanitary engineers When they take the stand, however, that they are the only people who know how to run departments of health, they are like a man looking through a microscope, seeing one small field very much enlarged and losing sight of the rest of the specimen There have been a few sanitary engineers who have made good health officers I believe that without exception they have been in small cities The splendid conduct of health matters we find in the state of Indiana is all due to a physician, the cities of Chicago, Detroit and Philadelphia were brought to the highest efficiency in health matters by physicians I cannot think of any city or state in this country which has made any great advance that has not been under a physician as health officer When you come down to the bottom, medicine is the foundation of all biologic and social training What Dr Geier says is exactly right, namely, the medical schools must keep up with the times, they must branch out a little Everybody should read the brochure of Dr Norman E Dittman entitled "Education and Preventive Medicine," noticing especially the outline at the end of the book which he has given for a course in preventive medicine. At the University of Wisconsin, for several years past, Professor Ross has been advising his students to take medical bacteriology, in which course they get a good training in contagious and infectious diseases Every social worker should have training in this sort of medicine

While it is true that not many places are open at the present time for graduates in preventive medicine, they are increasing at a tremendous rate We expect to graduate our first student with the degree of Doctor of Public Health this month, and already a place is waiting for him We must educate the people to the necessity and value of preventive medicine, proving to them that it is the cheapest and best life insurance in which they can invest As soon as business men realize this fact we will find all cities employing thoroughly trained health officers

Dr J N Hurty, Indianapolis Only the other day I happened on one of the works of Descartes You know that Descartes was probably the most original mind of this later age, and certainly, he, more than any other thinker, has influenced modern speculative and experimental thought He said that if ever the human race (he was not a physician) is to be raised to the highest practicable level, morally, mentally and physically, medicine would point the way This, which was said over two hundred and fifty years ago, struck me as a very forcible and wonderful utterance It is through hygiene that the human race is to be raised, it is hygiene that will finally purge the human race, as far as is practicable, of the terrible social diseases and of all of the other diseases which drag us down and which cost us so terribly It seems to me there is no question about it

Instead of believing that there is an oversupply of doctors of public health, I have decidedly the opposite opinion We want this minute ninety two doctors of public health in Indiana for commissioners of public health in each of our counties There is indeed a good market for them At the University of Michigan, not long ago, I studied the requirements for the degree of Doctor of Public Health, I think that they are too high at the present time They are ideal We should aim at the ideal, but we cannot reach it all at once I do not believe the universities will turn out enough doctors of public health to supply the Indiana demand for a long time, and I hope that the standard will not be placed so high that we may get a larger supply within a reasonable time We cannot reach the ideal at one step

Dr. Otto P Geier, Cincinnati I hardly can emphasize any more definitely than I have the points at issue The physician is forever turning aside the opportunities that are presenting themselves to him in the social service field We might well consider the economic phase of this question from the medical standpoint We are reducing incomes in the profession 30 to 40 per cent by medical preventive work, and we should plan to take care of the physician who has cooperated in reducing his work and thereby his income

A METHOD OF SELECTION OF DONOR FOR BLOOD TRANSFUSION *

MORRIS FISHBEIN, M.D
CHICAGO

The possibility of iso-agglutination makes the choice of a donor for blood transfusion an important matter It has been shown that individuals fall into definite groups as regards this phenomenon, and only a person belonging to the same group as the patient who is to be transfused should be selected as donor It is obvious that it is unsafe to transfuse with the blood of a donor whose serum will agglutinate the patient's corpuscles, or whose corpuscles are agglutinated by the patient's serum, and still more so when both these reactions occur Cases with seemingly unfavorable results under these conditions have been reported by Schultz,[1] Ottenberg[2] and Hopkins [3]

The following method may be used for carrying out such tests So far as the blood of the donors to be tested is concerned, sufficient blood may be obtained from the ear, but in the case of the patient it would be better to draw the blood from the median basilic vein of the arm in the usual way because more serum is required Three drops of the blood are added to 10 c c of a 1 per cent solution of sodium citrate in physiologic salt solution In this manner approximately a 2 per cent suspension of the blood is prepared, the citrate preventing coagulation The remaining blood is poured into a centrifuge tube and allowed to clot With a clean needle the clot is loosened from the side of the tube and the tube centrifuged for a few minutes to obtain an upper layer of absolutely clear serum This completes the preparation of material, with the exception of the plate which is now to be described and which has been found to be very serviceable On an ordinary piece of window glass, approximately 2 by 4 inches in size, which has been washed absolutely clean with water and ether, ten small circles are made with melted paraffin, assuming that a choice is to be made among five donors If the melted paraffin is drawn up into a medicine-dropper, the circles are quickly made with the tip while gentle pressure is exerted on the bulb Ten circles may be made with one medicine-dropper full of melted paraffin In this manner ten paraffin cups are made, each of which will hold at least 4 drops The circles are made in two rows of five each In each cup in the first row is placed 1 drop of the suspension of the patient's blood, and in each cup in the second row are placed 2 drops of the patient's serum To Cup 1 in the first row are added 2 drops of serum of Donor 1, to Cup 2, 2 drops of serum of Donor 2, etc To Cup 1 in the second row is added 1 drop of the blood of Donor 1, and to Cup 2, 1 drop of the blood of Donor 2, etc There are therefore required in such a set 5 drops of patient's blood suspension, and 10 drops of patient's serum, and 1 drop of each donor's blood suspension and 2 drops of serum With a narrow glass rod the fluids are mixed thoroughly, the rod being washed in citrate solution and wiped after each mixing In practically all instances, iso-agglutination when present becomes visible macroscopically after half an hour at room temperature, the mixture can be inspected easily under the microscope also It is obvious that in testing for iso-agglutination in larger groups as in twenty, the greatest advantage is to be derived from this method It has seemed so simple and easy of performance in comparison with other methods that it was thought best to make a brief report of it

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* From the Memorial Institute for Infectious Diseases.

[1] Schultz Ueber Bluttransfusion beim Menschen unter Berücksichtigung biologischer Vorprüfung Berl klin Wchnschr 1910 xlvii 1407

[2] Ottenberg Transfusion and the Question of Intravascular Agglutination Jour Exper Med 1911 xiii 425

[3] Hopkins J Gardner Phagocytosis of Red Blood Cells After Transfusion Arch. Int Med., September, 1910, p 270

THE PALLIATIVE TREATMENT OF TERMINAL LARYNGEAL TUBERCULOSIS *

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The palliative treatment of terminal laryngeal tuberculosis is a thankful one In private practice, much can be done by daily treatments to relieve the severity of the patient's sufferings, but in institutional work the problem is entirely different In public hospitals, as a rule, it is unusual to have a trained laryngologist constantly in attendance Therefore the questions arise what practical methods should be adopted for giving permanent relief from the laryngeal pain, and whether such methods could be put into the hands of the resident physician Whether this problem has been solved can be determined by a study of the results obtained in the following series of cases

The condition of these patients is such as to awaken our deepest sympathy Doomed in a few months to die, with absolutely no hope of escape, their last moments are made miserable by continuous pains in the larynx, which are present not only during the ingestion of food, but even when the larynx is in a condition of rest The taking of solid food is an impossibility, and even the swallowing of water or milk produces such an agony of suffering that slow starvation is generally preferable

Local applications of cocain, frequent insufflations of propaesin, anesthesin or orthoform, local cauterization with lactic acid, can all be used with marked benefit to the patient As a usual thing, however, these measures give only temporary relief and in addition consume so much time as to make them impossible to be thoroughly carried out in a hospital of several hundred beds

In the cases which are not too far advanced the patient can be instructed in methods of auto insufflation, but in the bed-ridden patients in whom the suffering is the most intense, local methods have been found to be of very little benefit

It occurred to Rudolf Hoffman, of Munich, that some form of permanent anesthesia of the interior of the larynx would prove an unbelievable blessing to this class of poor unfortunates The brilliant results in superficial neuralgias, which followed Professor Schlösser's original communication on the use of alcohol injections in these conditions, gave him the clue, and he saw that by injecting the superior laryngeal nerve such an anesthesia might be brought about Already Braun and Frey by means of cocain injections in the region of the ramus internus of the superior laryngeal nerve, had secured anesthesia sufficient to carry out small laryngeal operations

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* Read [illegible]

The emaciation which is usually an accompaniment of tuberculosis in the latter stages makes it particularly easy for this procedure to be carried out successfully The point of entrance of the nerve through the thyrohyoid membrane can be palpated with great exactness The technic of making the injection is as follows The skin is first prepared by painting the region to be injected with iodin The left side of the larynx is grasped with the first and second fingers of the right hand, and with the thumb of the same hand the painful point is located As soon as this spot is found the thumb-nail is pressed in to mark the spot and the needle is introduced at that point The needle is introduced perpendicularly for 1 5 cm , then the point is moved in all directions until a sharp pain, radiating to the ear, is felt From 3 to 5 c c of a warm solution of 85 per cent alcohol are then injected until the pain in the ear disappears The point of entrance of the nerve will be found just at the upper edge of the thyroid cartilage, about one-third of the distance from its outer edge

In none of the sixteen cases reported by Hoffman, and certainly in none of my own cases, were untoward effects observed In fact, it can be stated that the procedure is entirely without danger The relief from pain is immediate, and aspiration of food as a result of paralysis has seldom been observed The injection can be repeated without danger as often as necessary The duration of the anesthesia varies from a few hours to as long as forty days

To my mind one of the most important secondary effects of the injection is the mental effect on the patients The immediate relief from pain gives them hope of rapid recovery, their spirits improve and they try to take more nourishment

The great value of this procedure is undoubted, yet a study of the literature shows surprisingly few case series reported The simplicity of the procedure, the ease of application, the permanency of the result, and, most important of all, the fact that the method can be used by any medical man or intern, make it a relief measure with which every man working with tuberculosis should be familiar

The tabulated series of cases, studied at the San Francisco City and County Hospital for Tuberculosis, is especially interesting for several reasons, and as far as the literature shows, absolutely unique, in that only those cases were selected in which death was inevitable within a few weeks, and the sufferings of the patients were intense The majority of the patients found the greatest relief from pain and surcease from their sufferings up to the day of their death The negative results in three cases are self-explanatory

The negative results in the series mentioned above, and in some subsequent cases in which the laryngeal involvement was not so marked, bring out one interesting point If there is an involvement of the epiglottis, especially on the external surface, the relief from the injection is *entirely absent in most cases, and only partially present in others*

TABLE SHOWING RESULTS OF ALCOHOL INJECTION IN TEN CASES OF TERMINAL LARYNGEAL TUBERCULOSIS

No	Name	Sex	Age	Pulmonary Findings	Larynx Findings	First Injection	Condition Before First Injection	Relief After Injection	Days Relief	Later Injection	Condition Before Second Injection	Death	Total Days Relief
1	N	M	35	Very late cavity formation daily fever	Both cords and arytenoids deeply ulcerated epiglottis free	2/1/12 Both sides	Continuous pain night and day increased on swallowing	Immediate relief freedom from pain eating and mental condition improved	30	Second 3/2/12	Patient rapidly failing mentally irrational complains of some pain	3/18/12	40
2	K	M	23	Same as Case 1	Filled with pus and mucus ulceration of arytenoids	2/4/12 Both sides	Continuous pain night and day solid food impossible takes milk one swallow at a time.	Great relief, lasting until death	14	None		2/18/12	14
3	W	F	55	Same as Case 1	Large ulceration of tongue and interarytenoid space fungating granuloma of right cord large ulceration of septum	2/1/12 Both sides	Sharp racking continuous pain day and night cannot drink milk or water except by single swallow	Immediate marked improvement free from all pain swallows easily takes solid food, says relief is wonderful	3		Repetition of injection not absolutely necessary but was made at request of patient comfortable up to death	3/3/12	31
4	C	M	25	Same as Case 1	Large ulcerative process of cords and arytenoids	2/12/12 Both sides	Great pain on swallowing and between meals	Immediate marked improvement drinks an entire glass of milk.	31	3/15/12	Pain has returned last few days patient wants second injection	3/16/12	31
5	B	M.	32	Same as Case 1 Tuberculosis of femur	Slight infiltration of interarytenoid space no ulceration	2/28/12 Both sides	Complains of constant hacking cough no pain on swallowing	Immediate relief from cough which patient ascribes to injection (?)	19			4/24/12	‡
6	S	M.	27	Patient *in extremis* rapidly failing	Filled with pus, regurgitates all food.	2/10/12 Both sides	Constant pain on swallowing	Relief claimed by patient who is not rational result considered doubtful		Second injection refused		5/29/12	‡
7	H	M.	47	Same as Case 1	Great thickening of epiglottis no view of larynx	3/21/12 Both sides.	Burning pain on swallowing can take no liquids	Relief after forty eight hours	9	None		3/30/12	9
8	W	F	30	Same as Case 1 Weight 60 lbs.	Large ulceration of arytenoids first exam 3/6 no pain till 3/28	3/28/12 Right side	Pain on swallowing	Relief immediate and lasted until death April 11 1912	15	None		4/11/12	15
9	D	M	56	Same as Case 1 "	Cords arytenoids and epiglottis ulcerated.	3/10/12	Continuous and racking pain demands relief by repeated injections	Nerve not located by first two inj immediate marked relief following third	34	2nd 3/28 3rd 4/11/12		5/15/12	34
10	Y *	M.	37	*In extremis*	Extensive ulceration of cords and arytenoids	4/4/12 Both sides	Continuous racking pain.	Nerve not located no pain in ears no relief	†			4/4/12	

* Japanese † Died day of injection ‡ Relief from injection doubtful

This fact was proved in one case in which the ulceration involved the internal surface of the epiglottis Because of its low position it was thought inadvisable to amputate Repeated alcohol injections were made both by myself and others without the slightest relief Subsequent amputation of the epiglottis gave immediate and lasting relief This is probably to be explained by the fact that the external surface of the epiglottis is innervated by the glossopharyngeus, while the internal surface is innervated by the superior laryngeal nerve coming from the vagus

The severity of the cases can be appreciated by the fact that the longest period a case was under observation before death intervened was forty-six days, the shortest, three days The relief in most cases was immediate and marked, lasting usually up to the day of death Most of the patients requested a second injection and described the relief in the most exaggerated terms such as 'marvelous," "wonderful," etc

The accompanying table is self-explanatory All of the patients were bed-ridden, none recovered Although this procedure can in no sense be looked on as a curative measure, the marked relief afforded the patients puts it in a class by itself as a palliative measure

In conclusion, it should be noted that the failures are in the vast majority of cases, due to faulty technic This can usually be proved at the time of the injection If the patient does not complain of a sharp pain, due to a rubbing of the point of the needle against the nerve, the injection will probably be a failure It is always well, however, when it has been impossible to locate the nerve by this method, to inject the alcohol, as the perineural infiltration will possibly cause enough anesthesia to help the patient greatly

209 Post Street

IMMUNIZATION IN PNEUMOCOCCUS INFECTIONS [*]

E C ROSENOW, M D
CHICAGO

The formation of antibodies in those infections due to bacteria which produce little or no soluble toxins is held to be due to the stimulus of the whole bacterium in question Intoxication and immunization are held to be due to the same cause The idea that there are produced during infections substances purely toxic in nature which do not call forth an immunizing response, but which may even interfere with the proper formation of antibodies in response to certain other substances, has not been considered by most investigators

In this paper I wish to present briefly the results of immunization experiments in animals and the results of the treatment of lobar pneumonia in man with various products obtainable from pneumococci

The opsonic content of the serum in lobar pneumonia has been found to be below normal during the early part of the disease but well above normal as the symptoms subside In those patients who die from overwhelming infection it remains persistently below normal In experimental pneumococcus infections the opsonic curve runs a similar course When pneumococci killed by heat are injected there is first a reduction and then an increase in opsonin practically similar to what occurs during an infection The opsonic content of the serum for pneumococci may therefore be looked on in a general way as an index of resistance

When highly virulent pneumococci are allowed to autolyze in sodium chlorid solution there appears at a certain period a highly toxic substance This, when injected intravenously in guinea-pigs, rabbits and dogs, produces symptoms characteristic of anaphylaxis in these species, and when injected subcutaneously in man produces a moderate increase in opsonins after a short negative phase, rather marked local reaction, leukocytosis and some fever These extracts call forth reactions in man similar to those caused by the heat-killed bacteria The pneumococci after extraction or autolysis lose the ability to retain the Gram stain, show varying degrees of disintegration and when injected into animals and man exert little or no toxic action but induce a prompt rise in the opsonic power of the serum without a preceding negative phase By injecting large enough doses of a combination of the toxic material and the autolyzed pneumococci I have been able to produce a continuous negative phase similar to that observed in overwhelming pneumococcus infections The mechanism of immunization seems paralyzed In this connection it should be pointed out that the action of the toxic material obtained by autolysis of pneumococci is exactly similar to that which I have found in various pneumococcus exudates, such as the peritoneal exudate in pneumococcus peritonitis from the consolidated lung in pneumonia, from pneumococcus empyema pus, etc The appearance of the toxic material in pneumococcus extracts and its disappearance have been found to be associated with proteolysis The toxicity of the extracts may be temporarily restored by the addition of serum, but not by a second addition of serum It has been found that intravenous injections of heat-killed pneumococci, of pneumococcus extracts during the toxic stage and after the toxicity has disappeared, of pneumococcus broth-culture filtrates and of autolyzed pneumococci render guinea-pigs resistant to subsequent injections of toxic autolysates in two, four six twenty-four and forty-eight hours respectively Salt solution, broth and extracts of typhoid bacilli, on the other hand, do not render guinea-pigs refractory to toxic pneumococcus autolysates The reaction seems to be specific The facts that the extracts after they have lost their toxicity and that autolyzed pneumococci which are non-toxic call forth reactions which render guinea-pigs resistant to such highly toxic material speak in favor of the view that intoxication is not essential in this process, but without further proof we could not be sure but that a certain amount of intoxication follows even these non toxic injections

The highly toxic substance in pneumococcus autolysates has been found to be soluble in ether This serves to separate the toxic substance from the protein constituents of the autolysate The ether soluble material produces symptoms in guinea pigs exactly similar to those observed following the injection of the autolysate itself, but fails to render the animals insusceptible to subsequent injections of both the toxic autolysate and the ether-soluble portion We have here then an example of intoxication by a bacterial product which does not call forth an immunizing response Moreover the protective value against experimental pneumococcus infections in the guinea pig and rabbit of heat killed pneumococci and of pneumococcus extracts before the toxic stage has been reached has been found to be distinctly less than that of large doses of autolyzed pneumococci and autolysates after the toxicity has disappeared The immunizing substances seem to be present in relatively larger amounts The protective power is greater in the antigens from which the toxic substance has been removed

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[*] Read in the Section on Practice of Medicine of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912

[*] From the Memorial Institute for Infectious Diseases Chicago

For the treatment of lobar pneumonia so far chiefly the autolyzed pneumococci have been used

A study by the statistical method during the past two years at the Cook County Hospital has shown a definite reduction in the mortality of the 130 treated cases The number of patients treated, however, is too small to allow definite conclusions to be drawn, but when we consider that the patients that have been treated in this way belong to the most unfavorable group it looks as if this antigen really was of definite value

Recently the effect of the non-toxic autolysate has also been tested The seemingly beneficial effect in individual cases especially when the injection was made early has been very striking and it is proposed to carry out a study of this mode of treatment by the statistical method

5804 Washington Avenue

ABSTRACT OF DISCUSSION

Dr G A. Warren, Black Rock, Ark What has been said regarding typhoid immunity, I believe, admits of no argument I have not followed so carefully as has Dr Rosenow the work on the opsonic index, but I have followed with care the clinical manifestations after the immunizing treatment of those who have been subjects of pneumonia, particularly after having gone through an experience with an epidemic of this disease in our part of the country Not only did I use this treatment for immunizing purposes, but I used it in the treatment of the patients themselves, those who had not been given the immunizing doses but who developed the disease Did the immunity to which Dr Rosenow referred occur among guinea pigs alone, and how long was the immunity supposed to last if at all? An attack of pneumonia, as we all know, establishes an immunity for a very short time, and contrary to other infectious diseases, after the period of immunity has passed the person is now liable to subsequent attacks of the disease This has been our teaching and has been warranted by observation I have followed, I think not less than thirty seven cases which seemed typical, beginning with chill fever and so forth, and which have been placed under this treatment The treatment of these cases alone, would not amount to much in establishing the remedy were they not corroborated by other investigators Instead of the classical crisis that occurs in lobar pneumonia, we find a gradual disappearance of the disease by lysis and a milder termination of the disease than is common I have been led to believe that immunizing is what we all have been looking for, but after the disease is established, vaccines or antigens should be used as treatment, together with our medicinal standbys' as we get a shorter duration of the disease and a much milder and quicker termination

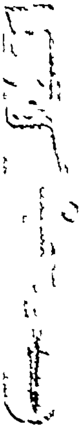
Dr. Solomon Solis Cohen Philadelphia In using the latest introduction namely, toxins derived from pneumococcus cultures the organisms are killed the cultures filtered, and with this filtrate there are mixed like products of other organisms, chiefly streptococcus and staphylococcus in definite proportions Carefully used, the substance has not seemed to do harm which is the first and most important question the second, it has seemed to promote resolution in some cases of delay after symptomatic recovery under treatment with injections of quinin and urea hydrochlorid I have several times called attention to the great value of these massive injections of quinin carbamid in overcoming the pneumonic toxemia but in a certain number of ca es, after the toxemic symptoms disappear resolution is slow, probably because the treatment saves life in patients who would otherwise go unresolved to the grave In a few (four or five) such instances, I have used these toxic filtrates and the results have been striking After an intravenous injection the temperature will shoot up 4 or 5 degrees, and there is marked rigor, then, within a few hours there occurs an actual crisis during which the patient may become cyanotic and sweat profusely, the blood pressure and the pulse falling as well as the temperature, and all of these may fall far below the normal line When one sees this the first time, one may be alarmed lest the patient go into collapse The functions, however, soon return to normal and the patient professes increased comfort Resolution is apparently given a fillip by the disturbance When the toxic filtrate is used intramuscularly the reaction is less pronounced, and the intravenous injection later is better borne I am always in readiness to meet danger, however, with camphor, epinephrin, heat, strychnin, atropin, or whatever may be indicated

Secondly, I have also used the pneumococcic and mixed bacterins (vaccines, so called), the suspensions of killed bacteria to promote resolution, and in a few cases, from the beginning The results in the latter group are perhaps not quite so favorable as with the quinin and urea, but I can confirm Dr Warren as to termination by lysis instead of crisis The same thing happens when the quinin and urea salt is used early, hence I consider it an antitoxic. I urge on those who have the opportunity to observe patients under suitable conditions that in selected cases they make careful trial of bacterial products By suitable conditions, I mean that the patients shall be under the constant observation of dependable interns and trustworthy nurses in hospitals The methods are not at present suited to the conditions of house practice or even of indiscriminate hospital routine

Dr. DeLancey Rochester, Buffalo, N Y According to Shattuck's analysis of the cases of pneumonia that have been treated in the Massachusetts General Hospital between the years 1889 and 1912, the death rate was about the same as during the last 100 years by the various methods of treatment employed I speak of this because I have been very much impressed with Dr Rosenow's work This work I have been following carefully in the literature It holds out to us a definite advance in method of treatment There is no doubt that a careful study of the use of the antibodies in the treatment of these cases will be of great value to us

Dr John A Lichty, Pittsburgh I wish here to present a temperature curve of a typical case of pneumonia affecting successively two lobes, and should like to ask Dr Rosenow when he would expect a change in this curve from the use of the serum treatment, and in what part of the curve he would expect the change, and what change would he expect? I had under observation a child 12 years of age, with typical lobar pneumonia at the right base In four days the middle lobe became affected, but there was no change in the temperature curve At the end of the tenth day the lower lobe cleared up and the temperature dropped to the normal Four days later the middle lobe cleared up and the temperature went down to subnormal No doubt something occurred in the system which kept the temperature lower at one period than at another During the second lobe involvement something had happened between these two points which kept the temperature down Does Dr Rosenow use his treatment also as a prophylactic? We are all besieged daily by exploiters who offer us all sorts of serums and most of us are at a loss to know just what to do We depend, therefore, on such statements as Dr Rosenow has given us to set us right

Dr. E C Rosenow, Chicago I think it is well known that the immunity following attacks of lobar pneumonia is very short, the ability to produce these antibodies in the serum which can be transferred to the human is practically impossible and, for that reason, we hoped to do good in these cases of lobar pneumonia by relying on some form of active immunization—some product of the organism itself I believe that in a disease like pneumonia the final proof of how much good really results from treatment is statistical We all know that there are cases of this disease that run only two or three days then there are cases that begin with great severity I am not willing to accept the study of any one particular case as a final proof I am very hopeful of what I have



the food there is certain to be a loss of weight in the beginning of the treatment This is followed by a stationary period, then, when the amount of food is increased and carbohydrates added, by an increase in weight They found that babies could be kept on this food for months and continue to thrive

It has been shown that milk-sugar causes diarrhea much more easily than dextrin-maltose mixtures, which are generally well borne It has also been shown that withdrawal of all sugar diminishes the secretion of the ferments necessary for the metabolism of sugar The axiom of this scientific finding is that when sugar is again begun after complete withdrawal, only small amounts should at first be administered

Morse concludes his paper with the statement that he believes the method of withdrawing lactose and raising the percentage of casein followed by the addition of dextrin maltose is the most valuable one in the treatment of intestinal disturbances of infants He also believes that as soon as the digestion is improved the child should be put back on its ordinary diet

Dr J M Brady[4] reminds American physicians of the milk nutritional disorders described by Czerny and Keller The symptoms of this disease as described by these writers and translated by Brady are as follows They develop gradually, and are often overlooked by the mother If the baby is regularly weighed, the weight-curve will be found irregular, first no gain, then a slight gain, the lack of gain is often in spite of the fact that the caloric value of the food is increased Then the amount and strength of the food is increased, and in spite of this the child begins to lose weight and becomes pale, the skin loses its elasticity, the muscles become soft and flabby, and the child is restless, peevish and sleepless The abdomen becomes distended and vomiting sometimes occurs The stools are characteristic, they become gray, or grayish-white, dry, do not soil the napkin, and are frequently of foul odor The dryness of the stool is due to lack of water, and the stool is composed largely of insoluble soaps, which soaps cannot take up water The reaction of the stool is alkaline If dyspepsia and intestinal infection occur, the stools then become more watery and acid If proper treatment is not soon instituted such little patients become marasmic

These writers believe the cause of this metabolic disturbance is that there has been too much fat in the baby's food, at least too much for the particular baby They do not believe bacteria have anything to do with the condition Increase in the proteins brings about no change in the condition The diminution of fat or an increase in the carbohydrate causes improvement and disappearance of the soap stools

Finkelstein believes that this condition may be due to an excess of fatty acids combining with calcium and magnesium, with the result that there is formed a much larger amount of insoluble calcium and magnesium soaps than is normal It has also been found that in these digestive disturbances there is a condition bordering on acidosis and there is an increase of ammonia salts in the urine The administration however, of alkalies does not help the child until the mistake in the diet has been remedied Nevertheless alkali is added in the recommended treatment, namely in what has been termed "Keller's malt soup" This malt soup is asserted by the authors almost invariably to cause recovery of the babies who have this milk nutritional disorder Brady believes that this food has the greatest value when the baby is more than 3 months old, and the baby must also have a good carbohydrate tolerance

KELLER'S MALT SOUP

It is prepared as follows

Two ounces of wheat flour are mixed with 11 ounces of whole milk and then passed through a sieve In a second vessel 3 ounces of extract of malt are mixed with 20 ounces of warm water The two mixtures are then poured into a porcelain vessel, 2½ drams of 11 per cent carbonate of potassium added, and the whole cooked with constant stirring for twenty minutes and then brought to a momentary boil, any loss through heat is made up by the addition of boiled water

This mixture has a formula of fat 1 20, protein 2 00, carbohydrates 12 00, and has a caloric value of 800 to the liter The above is designed for babies with a body weight of from 6½ to 10 pounds from the third month to the ninth month. For babies under 3 months old the flour is reduced to 1 ounce and the malt extract to 2 ounces It must be kept on ice and warmed before being fed It has a sweet, pleasant taste and is taken greedily by all infants

VALUABLE SUGGESTIONS

Some facts for the determination of the welfare of an infant the first three months of its life are well presented by Dr F C Neff,[5] whose observations are based on the study of a hundred infants, all artificially fed Some of his conclusions are as follows

1 The temperature of an infant should always be taken by the rectum Neff believes that an infant's normal temperature in this region is 98 6 F He believes that even a temperature of 99 is suspicious and should be regarded as pathologic

2 There is no advantage in peptonizing the milk for new-born babes, but it is occasionally beneficial in older infants

3 Buttermilk is a useful food in some cases, even in the first weeks of life, and it should be tried in cases of fat intolerance and in enterocolitis

4 Some infants show increased weight when fed on skimmed milk, which when suitably diluted can be made the basis for fat and sugar additions

5 Malt soup is the food that in his experience proved the best milk preparation

6 Casein milk has a useful but limited field in catarrhal enteritis

7 Maltose answers all the requirements for a sugar in infant feeding

CARE OF THE TEETH

The mother should be carefully instructed to cleanse the child's teeth gently with a simple alkaline mouth wash, and, perhaps, a soft brush, at least twice a day, better three times a day Nothing is better than a simple dilute milk of magnesia Care should be taken not to rub or irritate the tender gums, but it is well to remove all particles of milk from the mouth, especially after a number of teeth have erupted Acid decomposition in the mouth is one of the causes of early decay of teeth

CONSTIPATION

If the child, in spite of the diet being as near proper as possible, becomes constipated, the simplest addition to its food, whatever it may be, is probably a milk of magnesia It also adds, many times, a necessary alkali to a milk food While lime-water may often be of value, it is also more or less constipating A good milk of magnesia, besides preventing the formation of large curds, if cow's milk is the food, also acts as a gentle laxative The amount and the frequency in twenty-four hours depend entirely on the results

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[4] Brady J M The Journal A M A March 16 1912 p 751

[5] Neff F C The Journal A M A Dec 23 1911 p 2068

Special Article

TENTH ANNUAL SUMMARY OF FOURTH OF JULY INJURIES

This week, for the tenth consecutive year, The Journal presents statistics of deaths and injuries resulting from the celebration of the Fourth of July, with particular reference to tetanus, or lockjaw, resulting from these injuries With the rapid decline in the number of casualties in the last few years, instead of relaxing its vigilance The Journal has made extra effort to secure complete and accurate data Very significant is the fact, however, that a large majority of the blanks were returned from hospitals bearing the statement, "No cases treated this year," or "This city had a sane Fourth " From others the lists had but a few names whereas in previous years the pages were filled Our thanks are due to health officers, hospital superintendents, physicians and others for the careful reports which have made these statistics practically complete and the figures fairly reliable The data are presented in the same manner as heretofore so that comparison with the figures of previous years may be made

FEWER CASES OF LOCKJAW

Only seven cases of tetanus were reported this year as compared with eighteen last year, seventy-two in 1910 and 150 in 1909 The returns this year encourage the hope that deaths from this needless cause will soon cease

A SANE FOURTH MEANS A HAPPY HOME

WE HAD THE BEST TIME WE EVER HAD THIS YEAR!
YES SIR! AND NONE OF THE KIDS I KNOW GOT HURT!
DAILY PAPER
AMERICAN MEDICAL ASSOCIATION REPORT OF 4TH OF JULY CASUALTIES
1912 KILLED—41 INJURED—947
1911 KILLED—57 INJURED—1546
1903 KILLED 466 INJURED 3983
American Medical Association Cartoon Series No. 14

THERE WERE FEWER ACCIDENTS THIS YEAR THAN EVER BEFORE BUT STILL TOO MANY-

TABLE 1—CASES OF TETANUS

Name	Sex	Age	Cause of Wound	Site of Wound	Duration in Days	Day Antitoxin was used	Termination
CALIFORNIA							
Chargin	M	10	Bl ctg	Hand	(4) 10	4	D
INDIANA							
Porter	M	10	Bl ctg	Hand	7		D
MASSACHUSETTS							
Letellaire	M	11	Bl. ctg	Hand	(4) 10		D
MICHIGAN							
Ronzani	[illegible]	13	Bl ctg	Hand			
OKLAHOMA							
Jones	M	12	Bl ctg	Leg			D
WEST VIRGINIA							
Bowman	M	8	Bl. ctg	Leg	(5) 8	5	D
Miller	F	15	Bl ctg	Hand	(6) 8		D

Figures in parentheses show incubation period

The ages of the lockjaw patients this year ranged from 8 to 15 years, and all but one were boys In five cases the injury was on the hand, in the other two it was on the leg The length of time between injury and death was from seven to ten days The figures in parentheses (Table 1) give the number of days between the time of injury and the appearance of active symptoms of tetanus varying from four to six days In two cases antitoxin was said to have been used, but most unfortunately it was not employed until after the active symptoms of the disease had set in and this is almost invariably too late a period for its successful use Tetanus antitoxin is chiefly valuable as a prophylactic and very few cases have been reported in which its use immediately after the injury has been followed by active symptoms of the disease The list of tetanus cases is given in Table 1

DISTRIBUTION OF TETANUS

The tetanus cases by states are shown in Table 2 Cases occurred in only six states this year as against ten states last year, eighteen states in 1910 and twenty-five states in 1909 One state, West Virginia had two cases of tetanus this year, both occurring in the same city, Wellsburg Other states having one case each were California, Indiana, Massachusetts, Michigan and Oklahoma Illinois, Missouri, New Jersey, New York Pennsylvania and Wisconsin, which heretofore have had so many cases reported, had none this year

THE DEADLY BLANK CARTRIDGE

Blank cartridge wounds which have always been responsible for a large majority of tetanus cases, this

TABLE 3—RATIO OF TETANUS CASES TO BLANK CARTRIDGE INJURIES

Year	Tetanus Cases	Blank Cartridge Injuries	Ratio
[illegible]	7	[illegible]	[illegible]
1911	15	[illegible]	[illegible]
1910	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	1
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]

year caused all of the seven cases With a full knowledge of this fact and of the awfulness of the deaths from lockjaw, it is entirely inexcusable if not actually criminal to tolerate further the use of blank-cartridge pistols

As may be noted on comparison of the statistics of this year with those of previous years (Table 3), there is a significant ratio each year between the number of tetanus cases and the number of blank-cartridge wounds

TABLE 2—TETANUS CASES BY STATES

Comparison With Previous Years

	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Alabama			1							
Arizona					1					
California	2	4	4	3	1		2	1	2	1
Colorado	4		1							
Connecticut	3		3		4	1				
Delaware			1	1	1		2			
Dist of Col	1									
Florida							1			
Georgia					1					
Idaho	1						1			
Illinois	49	15	20	10	12	12	20	10	3	
Indiana	11	6	3	8	2		9	6		1
Iowa	14	2	3	4	4	1	1	1	1	
Kansas	11	1			2	1	6			
Kentucky	4	2		1		1	1			
Louisiana										
Maine	2	4	1	1		1	1	1		
Maryland	1		1	1			2	2		
Mass	16	5	7	3	2	5	8		1	1
Michigan	29	7	9	1	4	2	11	11	2	1
Minnesota	15	2	2	2	2					
Missouri	29	1	3	3	1	5	8	2		
Montana	2	1	1		1		3	2		
Nebraska	4	3	3	1		1	3	1		
New Hamp	2			1			1			
New Jersey	8	9	3	10	8	10	19	9	2	
New York	30	9	6	8	4	9	11	7	1	
N Dakota										
Ohio	67	9	5	7	6	7	12	3	3	
Oklahoma	1		1	1		1		1		1
Oregon	2			1	1	1				
Penn	82	17	12	5	7	7	10	11	1	
Rhode Island	3			1						
S Carolina										
S Dakota						1	1			
Tennessee										
Texas					2					
Utah		1	1					1		
Vermont	3	2		2	2					
Washington	2	2			2	4	4	1		
W Virginia	3			2		1	4			2
Wisconsin	10	4	13	2	3	5	9	3	2	
Wyoming				1						
Total	415	105	104	80	73	76	150	72	18	7
States having cases	30	21	23	25	23	20	25	18	10	6

TABLE 4—CAUSES OF TETANUS CASES

Year	Blank Cartridge	Giant Cracker	Cannon	Fire arms	Powder etc.	Total
1903	303	17	5	3	27	415
1904	74	18	5	1	7	105
1905	65	17	4	5	13	104
1906	44	17	1	7	10	80
1907	52	8	6	4	3	73
1908	58	5	4	3	6	76
1909	130	9	1	4	6	150
1910	64	2		5	1	72
1911	15	1	1		1	18
1912	7					7

A larger number of blank-cartridge wounds almost invariably brings also a larger number of cases of lockjaw Do away entirely with blank-cartridge pistols, therefore, and lockjaw from the celebration of the Fourth of July will be practically abolished

THE MORTALITY IN TETANUS CASES

Of the seven cases of tetanus reported this year, six, or 86 per cent, were reported as fatal as compared with 55 per cent last year, 93 per cent in 1910 and 84 per cent in 1909

TETANUS FROM INJURIES NOT CAUSED BY FIREWORKS

Besides the cases of lockjaw due directly to the use of fireworks, it is interesting to note also those occurring during the Fourth of July season which were due to penetrating wounds from other causes, such as nails or splinters, to crushing injuries, etc Instead of a reduction in these cases this year there was an increase, forty-three cases being reported during this Fourth of July season, or fourteen more than last year, when twenty-nine cases were reported The fact that tetanus germs were apparently fully as prevalent if not more so this year than in 1911 makes the marked reduction of cases from Fourth of July injuries all the more significant and gratifying

TABLE 5—CASES OF TETANUS FROM OTHER CAUSES

	1908	1909	1910	1911	1912		1908	1909	1910	1911	1912
Alabama			1	1		New Hampshire					
Arizona						New Jersey	7	8	8	1	
Arkansas	2					New Mexico		1			
California	4	4	1	2	7	New York	17	12	4	2	4
Colorado	3			1		North Carolina	1				
Connecticut.	2	2				North Dakota	1				
Delaware	2	1				Ohio	23	13	2		2
Dist. of Col						Oklahoma					
Florida	2					Oregon		1	3		2
Georgia		1				Pennsylvania	21	21	8	6	4
Idaho						Rhode Island		1			
Illinois	17	18	7	6	10	South Carolina					
Indiana	6	4	1	2	1	South Dakota	2	2			
Iowa	2	7	3	1		Tennessee	3				1
Kansas	4		1			Texas	4	1	1		
Kentucky	5	5		1	2	Utah					
Louisiana	1			1	8	Vermont			1		
Maine						Virginia	4	1		1	2
Maryland	3		2	1	1	Washington	2				1
Massachusetts	3	5				West Virginia		1			
Michigan	4	5	1			Wisconsin	5	4	1		
Minnesota	4	2				Wyoming					
Mississippi											
Missouri	12	5	1	2	3	Total.	166	128	47	20	44
Montana											
Nebraska		3	1	1	1						
Nevada						States reporting cases	20	25	18	15	15

TABLE 6—CAUSES OF DEATHS NOT DUE TO TETANUS

Year	Gunshot.	Fire from Fire works	Powder Torpedoes Etc	Giant Crackers	Cannon	Other Causes	Total
1905	37	23	6	5	7	17	95
1906	38	18	18	3	3	3	83
1907	20	31	13	13	3	22	102
1908	30	22	10	28	7	7	108
1909	17	37	16	7	7	6	90
1910	10	26	11	2	8	3	64
1911	11	12	9	2	5	8	47
1912	9	8	7	2	2	7	35

DEATHS AND INJURIES NOT CAUSED BY TETANUS

Besides the six deaths due to tetanus thirty-five persons were killed by various forms of fireworks, making a total of forty-one deaths, sixteen less than last year, ninety less than in 1910 and 174 less than in 1909 This is the lowest number of deaths from such causes during the ten years covered by THE JOURNAL'S statistics, and shows a decided improvement over previous years This year nine persons were killed outright by firearms, seven by explosions of powder, bombs or torpedoes, two by cannon, two by giant firecrackers and seven by various causes, as blood-poisoning, explosions of chemicals, etc There were eight victims also, mostly little girls, who were burned to death by fire from fireworks, some of these being the so-called harmless varieties, including very small firecrackers and sparklers All accidents not due directly to the discharge or handling of fireworks or other means of noise production and display on or about the Fourth of July have been omitted. Table 6 shows a comparison of the causes of deaths aside from tetanus for the past eight years.

DISTRIBUTION OF INJURIES

In Table 7 will be found a summary of all injuries including tetanus and of all causes arranged by states. Beneath the totals at the bottom are given, for comparison, the totals for the nine previous years. The grand totals for the ten years are also given. Table 8 permits the comparison by states of the total deaths and injuries for ten years. The number of casualties shows a continuation of the remarkable decrease of the last few years, which unquestionably is the result of the efforts to secure more intelligent methods of celebration. This is evident from the fact that the most marked decreases in the last two years are in the states in which the agitation for restrictive measures has been strongest. For example, the total casualties in Illinois this year are thirty-nine as against 218 last year, 285 in 1910 and 546 in 1909; Massachusetts had forty-five casualties this year as compared with twenty-seven last year, sixty-three in 1910 and 430 in 1909; Ohio had only fifty-five casualties this year, as compared with 105 last year, 166 in 1910 and 333 in 1909; New York had 115 this year as compared with 237 last year, 327 in 1910 and 897 in 1909; Wisconsin had only thirty-eight this year as compared with fifty-two last year, 171 in 1910 and 157 in 1909. Even in Pennsylvania, which has had the largest number of casualties for each of the last five years, there has been a marked improvement, clearly the result of a powerful campaign which has been carried on in that

TABLE 7.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES

Number	States	Deaths			Injuries						Total Persons Dead or Injured	Causes of Tetanus Cases		Causes of all Cases Aside from Tetanus Cases					Number
		From Tetanus	From Other Causes	Total	Loss of Sight	Loss of One Eye	Loss of Legs, Arms or Hands	Loss of Fingers One or More	Other Injuries	Total Non Fatal Injuries		Blank Cartridge	All Other Causes	Blank Cartridge	Fire Crackers	Cannon	Firearms	Powder and Fireworks	
1	Alabama																		1
2	Arizona								2	2	2				2				2
3	Arkansas					1				1	1				1				3
4	California	1		1		4	1	4	21	30	31	1		2	10	6	2	10	4
5	Colorado		3	3	1			2	15	18	21				13	2	1	5	5
6	Connecticut		1	1		2	1	3	23	29	30			9	3	6	[illegible]	5	6
7	Delaware								6	6	6				4	1	1		7
8	District of Columbia								2	2	2							2	8
9	Florida																		9
10	Georgia								28	28	28						6	22	10
11	Idaho								2	2	2						2		11
12	Illinois		3	3		2	1	1	32	36	39			4	9	3	15	8	12
13	Indiana	1	4	5	1	1	1		35	38	43	1		1	11	2	5	23	13
14	Iowa		2	2					22	22	24			2	14		2	6	14
15	Kansas							1	7	7	8				4	4			15
16	Kentucky							1	4	5	5				2		1	-	16
17	Louisiana								2	2	2						-		17
18	Maine																		18
19	Maryland								11	11	11			2	3	1	2	3	19
20	Massachusetts	1	1	2			1		42	43	45	1		1	20	3	4	16	20
21	Michigan		4	4	1	1		7	37	46	50	1			16	4	12	17	21
22	Minnesota						1		16	17	17				10	1		6	22
23	Mississippi								1	1	1							1	23
24	Missouri				1	1		3	52	57	57			4	20	5	13	15	24
25	Montana							2	4	6	6				3	1		-	25
26	Nebraska		1	1		1			10	11	12			1	6		-	3	26
27	Nevada																		27
28	New Hampshire								3	3	3			1				-	28
29	New Jersey		2	2	1	1			12	14	16			4	4		3	[illegible]	29
30	New Mexico																		30
31	New York		2	2		2	1	1	109	113	115			13	23	3	40	36	31
32	North Carolina																		32
33	North Dakota								2	[illegible]	2								33
34	Ohio		3	3				1	51	52	55			5	[illegible]	1	4	23	34
35	Oklahoma	1		1					10	10	11	1		1	4		-	3	35
36	Oregon						1		4	5	5				2			3	36
37	Pennsylvania		5	5	3	5	1	12	239	260	265			30	[illegible]	[illegible]	20	[illegible]	37
38	Rhode Island						1		1	-	2							-	38
39	South Carolina																		39
40	South Dakota																		40
41	Tennessee								12	12	12				1		8	3	41
42	Texas						-		1	3	3					-		1	42
43	Utah								1	1	1							1	43
44	Vermont							1		1	1							1	44
45	Virginia						1			1	1				1				45
46	Washington							2	10	12	12				3	1	-	6	46
47	West Virginia	-		2							-	2							47
48	Wisconsin		4	4				2	32	34	38				[illegible]	1	1	1	48
49	Wyoming								1	1	1							1	49
	1912 totals	6	35	41	8	21	13	43	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	1911 totals	10	47	57	8	20	30	63	[illegible]	1,546	1,603	[illegible]	3	[illegible]	[illegible]	114	[illegible]	[illegible]	
	1910 totals	67	64	131	[illegible]	[illegible]	26	114	[illegible]	[illegible]	[illegible]	64	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	1909 totals	125	90	215	16	[illegible]	41	176	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	1908 totals	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	154	[illegible]	400	[illegible]	[illegible]	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	1907 totals	62	102	164	12	75	57	237	[illegible]	[illegible]	4,413	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	1906 totals	[illegible]	83	[illegible]	[illegible]	[illegible]	[illegible]	227	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	1905 totals	[illegible]	[illegible]	[illegible]	[illegible]	103	[illegible]	221	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44	[illegible]	[illegible]	[illegible]	[illegible]	
	1904 totals	[illegible]	[illegible]	183	19	61	61	203	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	1903 totals	[illegible]	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	3,670	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	Total for ten years	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	475	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

Kind of fireworks causing six tetanus cases unknown. † Kind of fireworks causing [illegible] cases of [illegible] state and particularly in Philadelphia, for more enlightened methods of celebration That state had 265 casualties this year as compared with 442 last year, 623 in 1910 and 986 in 1909 Altogether there were only 988 casualties this year, 615 less than last year, 1,935 less than in 1910 and 4,319 less than in 1909 The total, however, is still by far too large and efforts at restriction should be continued

NATURE OF NON-FATAL INJURIES

There were 947 non-fatal injuries this year, or 599 less than last year Eight persons were totally blinded this year, twenty-one lost one eye each, thirteen lost legs, arms or hands, and forty-three lost one or more fingers

TABLE 8—TOTAL DEATHS AND ACCIDENTS BY STATES DURING TEN YEARS

	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Alabama	2	7	1	2	1	1	1	3	3	
Arizona	1		4	5	2	5	3		2	2
Arkansas			3	4		5	1	4	1	1
California	160	138	142	96	121	136	89	63	43	31
Colorado	36	44	26	93	25	13	18	19	6	21
Connecticut	162	133	132	109	63	105	86	78	15	30
Delaware	1	5	14	8	16	12	13	8	3	6
Dist Columbia	2	10	24	5	12	21				2
Florida	1	2	2				1	4		
Georgia				4	2	4		5	10	28
Idaho	4	4	3	3	4	4	2	3	1	2
Illinois	306	423	542	598	468	553	546	285	218	39
Indiana	160	211	217	250		255	164	167	53	43
Iowa	168	137	328	255	231	174	91	141	54	4
Kansas	63	88	56	61	64	72	86	50	25	8
Kentucky	30	72	17	21	18	33	17	26	6	5
Louisiana		2	8	7	8	4		4	2	2
Maine	31	32	29	15	11	16	22	7	4	
Maryland	21	22	13	10	23	21	10	8	13	11
Massachusetts	637	193	407	329	168	430	430	63	27	45
Michigan	144	157	288	103	108	203	177	143	60	50
Minnesota	157	102	174	95	95	65	69	64	17	17
Mississippi				2	2	1			1	1
Missouri	147	84	218	325	299	375	352	112	60	57
Montana	5	17	40	8	6	11	9	10		6
Nebraska	46	63	43	47	58	40	42	36	17	12
Nevada		1	2		1	4		1		
New Hampshire	37	23	9	20	13	13	23	10	2	3
New Jersey	228	204	350	398	402	472	488	167	43	16
New Mexico		4	5	1	6		1	3		
New York	522	549	566	681	752	647	897	327	287	115
North Carolina			1	1				1	5	
North Dakota	10	8	29	11	8	13	4	13	1	2
Ohio	443	327	329	490	375	543	323	166	105	55
Oklahoma	1	3	7	14	194	9	12	11	9	11
Oregon	16	13	9	11	5	9	21	19	3	5
Pennsylvania	553	444	721	969	491	987	986	623	442	265
Rhode Island	61	30	11	21	30	39	42	19	11	2
South Carolina				1			4		1	
South Dakota	4	10	15	5	8	10	9	4	2	
Tennessee	4	1	5	6	4	5	4	10	3	12
Texas	2	2	4	11	7	11	4	2		3
Utah	23	22	25	18	30	12	18	8	2	1
Vermont	45	14	10	14	18	19	12	4	4	1
Virginia		11	5	8		5			3	1
Washington	21	25	15	25	23	38	32	37	22	12
West Virginia	19	16	34	64	27	29	35	40	2	2
Wisconsin	190	215	230	155	160	187	157	171	52	38
Wyoming	1	2	8	3		1	1	4	4	1
Totals	4119	4169	5176	5466	4413	5623	5307	2923	1603	988

Although there has been a marked reduction in the total number of non-fatal injuries, the totals of these more severe injuries are about the same as reported for the two years previous The giant firecracker continues to hold the first place as a cause of lacerated wounds and is responsible for most of the losses of eyes, hands and fingers This year 362 injuries including two deaths were due to the giant firecracker Firearms caused 157 accidents this year including nine killed Of the total number thus injured nearly half were orderly persons who were struck by stray bullets from the reckless use of firearms by others, and six deaths resulted The use of cannon caused seventy-five injuries, including two killed In the ten years, a total of 40,117 people—the equivalent of forty regiments—were killed or injured in the celebration of the Fourth of July!

TABLE 9—NUMBER REPORTED KILLED AND INJURED IN THE LARGER CITIES

City	Population Census of 1910	1907		1908		1909		1910		1911		1912	
		Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
New York City	4 776,883	22	422	11	310	7	550	6	179	3	91	1	58
Chicago	2 185,283	16	151	12	202		118	4	62	2	53	2	12
Philadelphia	1,549 008	7	248	6	426	9	508	4	405		294	2	127
St Louis	687 029	8	189	4	229	4	163		44		38		48
Boston	670,585	3	59	6	100	5	167		35		3		16
Cleveland	560 663	3	63	12	93		4		1		5		1
Baltimore	558 485		5	1	10		5		6		10		10
Pittsburgh	533 905	10	88		30	5	48	6	26	1	25	1	14
Detroit	465 766	2	46		10	2	40	1	17		18	2	20
Buffalo	423 715		18	3	11		33	1	13		16		6
San Francisco	416,912				11		12		9	1	8		7
Milwaukee	373,857	2	93		70		78	3	112	1	19		24
Cincinnati	364 463	2	89	1	112	3	86	8	40	1	4		21
Newark N J	347 469	1	120	2	81	1	150	1	15				
New Orleans La	339 075		8		4				3		2		2
Washington D C	331 069		12		21								2
Los Angeles Cal	319 198		35		40		26				4		5
Minneapolis, Minn	301 408		13		10	1	24		20				
Jersey City N J	267 779		31	5	34	1	14	1	44		14		8
Kansas City Mo	248,381	1	46		53	4	67	1	25		4		1
Seattle Wash	237 194	1	3		11	3	10		7				2
Indianapolis Ind	233 650	1	31	1	14	1	35		24		5		6
Providence R I	224,326		20	1	21		13		10	1	9		
Louisville Ky	223,928		13		10	1	10	1	13		[illegible]		2
Rochester N Y	218,149		12		10		5		10				2
St Paul Minn	214 744		20		13		18		12		10		7
Denver Colo	213,381		8		13		12	1	6				7
Portland Ore	207,214		2		3		16		13		1		2
Columbus Ohio	181,548	5	36		5	1	19				1		1
Toledo Ohio	168 497	1	5		8	2	3	1	2			1	1
Atlanta Ga	154,839	1	4		3				5		10		23
Oakland Cal	150 174		9				8		9		1		2
Worcester Mass	145,986	1	6	2	20	1	42		6		1		10
Syracuse, N Y	137 249		20		14		18		6		1		4
New Haven Conn	133 605		2				15				1		6
Birmingham Ala	132 685										3		
Memphis Tenn	131 105		1		3		4		2				2
Scranton Pa	129,867		5	1	17	1	20		6		10		
Richmond Va	127 628					1	1						
Paterson N J	125 600	1	20	2	31	1	45	1	14		5		2
Omaha Neb	124 096		25		10	1	17		17		7	1	2
Fall River Mass	119 295				12		19		1				1
Dayton Ohio	116 577		11		14		4		2		4		1
G Rapids Mich	112,571		20	1	30		3		17	1	6		9
Nashville, Tenn	110,364		2						8		2		10
Lowell Mass	106,294		23				16			1	3	1	
Cambridge Mass	104,839				17						4		
Spokane, Wash	104 402										7		4
Bridgeport Conn	102 054		1		27		21		4		4		1
Albany N Y	100,253	1	24		37		31		11	1	5		
Hartford Conn	98,915		18		18		11		14		1		9
Trenton N J	96 815		38	1	17	1	56				1		
New Bedford Mass	96 652				3								
Reading Pa	96 071		17		18		17	1	3		4		3
San Antonio Tex	96 614				1								
Camden N J	94 538		16		29	4	14		6			1	
Salt Lake City	92 777		15		6	2	14	1	4				1
Lynn Mass	89,336		3		11	3	16		4				2
Springfield Mass	88 926		21	1	36	1	9	1	2		[illegible]		
Wilmington Del	87 411	1	11		13	3	9		6				5
Des Moines Iowa	86 368	1	31		41		19		23		1		
Lawrence Mass	85 892		11	1		5	2						
Tacoma Wash	83 072	2	4	1	3		3		2				1
Kansas City Kan	82,331	1	10		17		33		14	1	5		
Yonkers N Y	79,803		32		5		6				4		
Houston Texas	78,800				1		1						
Duluth Minn	78,466		13		9	2	10		3		1		
St Joseph Mo	77 403	1	23	1	41	1	24		11		1		
Somerville Mass	77,236						1		2				1
Troy N Y	76,813			2	16		16	1	8		2		1
Utica N Y	74 419		18		10		5		1				
Waterbury Conn	73 141	2	8		14		5		15	1			
Schenectady N Y	72,826		4		20		8	1	13		7		
Hoboken N J	70 324		1	1	24		7		4				1
Elizabeth N J	73 409		48		72		37		15		1		
Manchester N H	70 063		3		1	1	5						1
Evansville Ind	69 647		5		12		6		7		1		
Norfolk Va	67 452												
Wilkes Barre Pa	67 105	1		3	38	1	15	2	8		2		5
Peoria Ill	66 950		8		27	1	22	1	17				2
Erie Pa	66,525				1		4		2		3		1
Savannah Ga	65 064												
Harrisburg Pa	64 186		23	1	71		22		3		1		
Portland Maine	58,571	1	2				2			1	2		
Totals		94	2,458	83	2,860	80	2,935	43	1 455	16	771	12	522
Totals elsewhere		70	1 791	80	2 600	135	2 156	88	1,337	41	775	29	423
Grand total		164	4,249	163	5 460	215	5 091	131	2,792	57	1,546	41	945

TOTALS IN CHIEF CITIES

Table 9 shows the number reported killed and injured in our largest cities during each of the past six years. The population figures are from the United States Census of 1910. This table is of particular interest, since by it the results of the adoption and enforcement of prohibitive or restrictive ordinances can be seen. Chicago, Philadelphia and Detroit each reported two deaths this year and six other cities reported one each, making a total of twelve deaths in our largest eighty-four cities as compared with sixteen killed last year, forty-three in 1910 and eighty in 1909. Philadelphia is the only large city having more than 100 injuries this year. Altogether only 522 non-fatal injuries were reported for these large cities this year, as compared with 771 last year, 1,455 in 1910 and 2,935 in 1909. A slight increase is seen in the records of some of these cities, although on the whole there has been a decided reduction. Even Philadelphia has reduced its total by more than one-half.

Of these eighty-four cities, twenty-one have a record of six or more injured, the same number as last year, but twenty-six less than in 1910 and thirty-seven less than in 1909. There were thirty of these cities which had a clean record this year as compared with twenty-four last year, eighteen in 1910 and eleven in 1909. On the other hand, only one city had *more than* 100 *injured* in each of the last two years, as compared with three in 1910, and six in 1909. Probably the most marked reductions in the number of injured in the last few years have been in New York, Chicago, Boston and Newark. From Newark no casualties have been reported during the last two years, although there were 150 injured and one killed there in 1909.

WHERE THE RESPONSIBILITY RESTS

As has been reiterated in these annual reports, the responsibility for the vast majority of Fourth of July injuries clearly rests with city governments, since the employment of death-dealing methods of celebration is subject to their regulation. It is therefore the duty of the city authorities to decide whether or not the maiming of hundreds, the agonizing deaths from lockjaw and the burning to death of little children by fire from fireworks are to be continued. Prohibitory ordinances are most effective and permanent, as shown by the results in Baltimore, Washington, Cleveland, Trenton and this year in Chicago, and even restrictive ordinances, if they could be rigidly enforced would be effective. But the enforcement of restrictive measures is difficult and requires constant vigilance on the part of the police. By the sound, it is difficult to know whether an explosion is due to a firecracker 3 inches long or to one 5 inches long, or whether it is due to some other forbidden form of fireworks. Under a prohibitory ordinance, however, any explosion is recognized at once as a violation of the law. Again, the smaller firecrackers and sparklers, which have been considered so harmless, caused the clothing of several girls or small children to catch fire this year and all were burned to death.

RECENT PROGRESS

It was understood from the beginning that the obliteration of the sorrow and suffering needlessly caused during the annual celebration of the Fourth of July could be brought about only by a vigorous campaign of education favoring more enlightened methods coupled with the enforcement of restrictive or prohibitive legislation against destructive methods.

For ten successive years THE JOURNAL has collected and published the statistics showing the dire results of this pseudopatriotic celebration of July 4, but for several years, apparently, there was little result. Aside from a publication of THE JOURNAL'S figures by a few prominent newspapers no attention was paid to the awful facts. In 1907, however, another table was added to THE JOURNAL'S statistics showing the number of killed and injured by cities and emphasis was laid on the statement that the responsibility for these casualties clearly rested with city governments. Also reprints of THE JOURNAL'S report were circulated far and wide among newspapers and other publications. Since that time not only has the press of the country generally taken up the cause, but also local, state and national organizations and societies have become interested. They have not only argued against the use of fireworks, but, more important still, have provided more rational and patriotic means of celebration. A correspondingly vigorous action has been taken by city councils during the last few years in enforcing restrictive or prohibitive legislation. These various forces, using and quoting as they did the statistics published annually in THE JOURNAL, have finally *reduced the totals of casualties* to a small fraction of what they were in previous years. The necessity of perseverance in this campaign for better methods of celebration is aptly shown by the record of Philadelphia. In spite of a most vigorous campaign which has been carried on during the last two years, that city still has over 100 injuries. A continuance of that campaign, however, will doubtless clear the city's record. The more general enforcement by city councils of restrictive measures, similar to those adopted by Chicago, Boston, New York and elsewhere, will do much to help the situation. Reports received also indicate that hundreds of smaller cities and towns this year enforced either restrictive or prohibitive measures. These measures should everywhere be generally adopted.

THE METHOD OF SUBSTITUTION

Better by far than mere negative methods of restricting or prohibiting the use of fireworks during the last few years, however, has been the general adoption of positive methods of reform. Our national Independence Day must cease to be a day of destruction and become a day of recreation, joy and enlightenment. From every section of the country comes the news that, in place of the senseless din of former years, more truly *patriotic methods* have been *employed*. The display of flags, the music of bands, the children's parade, the witnessing of historic floats, and afterward the picnics, the trips to the parks and the visiting of friends — these methods are coming more generally into favor. And the result is evident, the smallest number of lockjaw cases and other deaths reported in any year since THE JOURNAL began the collection of these statistics, fewer blinded eyes, fewer maimed bodies and an astonishing reduction in the number of injuries. Let the campaign be continued until this annual slaughter of innocent children shall cease and until common-sense methods of celebration shall prevail throughout our fair land.

The Ideal General Practitioner.—He is virile by virtue of his environment; he is self-reliant from his isolation; he is resourceful from necessity; he exalts common sense above fine theories; he deals with all conditions and preserves a breadth of vision, grasps general principles and, turning the [illegible] technical knowledge of the specialist [illegible] of his perspective. He knows his patient as a man and a friend and not as a commodity [illegible] who exemplifies [illegible] best and most [illegible] for all [illegible] [illegible]

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SATURDAY, SEPTEMBER 7, 1912

THE FOURTH OF JULY IN 1912

Probably in no previous year in the last half or three-quarters of a century has the celebration of the Fourth of July been so quiet, so orderly or so worthy of the dignity of a great nation as it was in this year of our Lord, nineteen hundred and twelve And probably in no previous celebration has there been so extensive and general a display of the national flag as this year Irresponsible rowdies with their giant firecrackers, their blank-cartridge pistols and their reckless shooting of firearms, instead of being tolerated in our large cities were promptly arrested and fined in most instances This year, instead of the usual pandemonium of ear-splitting and nerve-wrecking noise, there was order, with quiet, genuine enjoyment and recreation Instead of the former heathenish methods of celebration, there was much more general use of flag drills, band concerts, picnics, children's parades, pageants in which historic events were represented, etc Bright, innocent children, instead of being tortured, blinded, mutilated and burned to death as in former years, were this year preserved for their families and the world, save in a few sad instances Instead of 5,623 persons injured—the number reported by THE JOURNAL only a few years ago—there were only 988, and instead of 466 killed, including 406 who were subjected to the agonizing tortures of lockjaw, as reported by THE JOURNAL in 1903, there were only forty-one killed, including six tetanus victims Instead of having a continuous struggle of from twenty-four to seventy-two hours against disastrous fires caused by the discharge of fireworks, this year the fire departments of our large cities, with a few exceptions, were practically idle The forcing into bankruptcy of a few large fireworks factories in the last two or three years has been more than offset by the enormously increased sale of flags, bunting, banners and decorations

Besides their immediate effect in saving lives, preventing needless tortures and injuries, and increasing the enjoyment of the day by the new form of celebration, these changes have a much wider, more important and lasting significance Whereas the old methods encouraged lawlessness, disorder, noise and a selfish disregard of human life and comfort, the new methods of celebrating Independence Day present an annually recurring opportunity to develop in the youth of our land ideas of national and civic righteousness and a love of law and order The old form of celebration permitted our national holiday to be given over to a furtherance of loose methods and degeneracy, the new methods will make of the celebration a means of developing a better and more useful citizenship

No day stands for more in the national life of this country than does the Fourth of July, hence the forms of its celebration point in the direction whither the undercurrents of national feeling are turning The flagrant disregard for law and order shown by the reckless use of firearms, blank cartridges and fireworks July 4 is but a parallel to the absence or looseness of law or authority in other phases of our national life As a reaction against the tyranny of monarchs which led to the formation of this republic, our government apparently swung to the other extreme of allowing the individual too much freedom This was inevitable, however, in the beginning of our country's history and continued so during the rapid extension of the frontier In fact, it has been only in comparatively recent years that the need of better laws, providing for the checking of selfish greed in the interests of the people as a whole, has been more evident Hoodlums and other reckless individuals were allowed to shoot, maim and kill others in a noisy, barbarous celebration of the Fourth of July for the same reason, clearly, that the vicious were permitted to traffic in vice, that the corrupt were allowed to find their profit on so huge a scale in politics, that corporations and private owners were permitted to neglect safety-devices in mines and other hazardous occupations, that thieves were allowed to appropriate the nation's timber and mineral lands by wholesale, that in a few years' time capitalists owning only thousands could become multimillionaires or billionaires, and that such disgraceful scandals as Lorimerism were made possible In short, the health and the life of the people have been wasted or jeopardized in countless ways for the profit of a few, because the people feared to infringe on individual liberty by exercising their own authority Only a few years ago, in fact, this trend toward an apparent national degeneracy was so marked that the country was becoming a mockery and a byword abroad, and its future well-nigh a subject of despair to many at home Such almost was the feeling held by THE JOURNAL when year after year—for seven long years—the publication of the awful results of the senseless—nay, damnable—methods of celebrating the Fourth were treated with indolent disregard and even in some instances with resentment and ridicule, while the annual murder and mutilation of thousands of innocent children went deliberately on

Other agencies have been energetically at work, and with some success, to correct other evils, and, by persistent hammering, THE JOURNAL's statistics have finally so thoroughly aroused public sentiment that the prohibition of fireworks and noise and the adoption of safe and sane methods of celebrating the Fourth of July are being generally demanded. A new era in our national life has begun wherein the necessity is recognized for law and regulation nicely calculated to place a check on individual selfishness and avarice in the interests of the people as a whole without hampering any justifiable private activity. There is still much room for improvement, however, in the celebration of our Independence Day. A total of forty-one killed, including six little children who died by the most agonizing death known to modern times, and 947 who were blinded, or bereft of arms, legs or hands or otherwise mutilated, many for life, still presents too serious a picture to permit a cessation of activity. Even though the totals are smaller than in previous years, the picture of these bright, active sweet-faced children who but for the criminal negligence of city authorities would still be among the living, is just as pitiful as ever. This year Chicago and several other cities exchanged restrictive for prohibitive measures and secured almost clean records. Cannot the authorities in all our cities and towns—and they are the ones who have the authority and, therefore, the responsibility in this matter—adopt and enforce effective measures so that following no celebrations hereafter will any doors bear crape or any hearts needless sorrows as a consequence of accidents so easily prevented? May not the next seven or eight months see so general an adoption of measures prohibiting fireworks that this national disgrace will be a thing of the past?

THE NEED OF A CRITICAL ATTITUDE IN CURRENT DISCUSSION ON NUTRITION

It was not until recent years that the practical questions relating to dietary standards received any widespread attention in the United States. The unremitting efforts of the late Professor Atwater and his associates, facilitated by the cooperation of governmental departments in giving a larger publicity to the work thus accomplished, have not been without permanent good in stimulating a wholesome interest in the subject of nutrition. From different angles other American investigators have brought their power to bear on the problems of food and diet so that no one can deny the existence of a sort of popular enthusiasm for the topics here involved. The fact that the technical expressions of physiology—calories, food units, metabolism and the like—have found their way into the humorous publications of the day as well as into the scientific journals, testifies to the hold which the study of nutrition has on the popular mind. Scarcely a week passes without some final dictum in the magazines of the day on the correct habits of eating, and the clever diction which some of these writers cultivate at times serves to conceal a ridiculous inference which is likely to appeal to popular fancy and frequently acts as a substitute for a more wholesome critical attitude. There is in much of this a danger that the reading public will—to borrow another's expression—become educated beyond its knowledge.

The interesting and laborious work of Chittenden and his colleagues at Yale on the practical protein minimum for an every-day dietary has led to much difference of opinion. In Germany the conclusion of these investigators that the commonly accepted "standards" of Voit and of Atwater, calling for a daily protein intake of 118 gm. of protein and over, are unduly large has received more ready acceptance than in Great Britain. In the United States the new propaganda has attained considerable popularity, but protests have by no means been lacking. Appeals have been made by the advocates of opposing views in a manner which now and then reminded one of partisan politics and the earlier days in the warfare of science[1]. The need of trenchant criticism is well illustrated by some of this literature from which the following widely quoted experience may be cited.

Major McCay of the Indian Medical Service has collected a valuable series of observations on the dietaries, food utilization and metabolism of certain native races that inhabit lower Bengal. These persons, who subsist on a simple vegetarian diet, in accord with the custom of many of their Eastern neighbors, are of inferior physique, of low endurance and activity and not long lived. Their protein intake is exceptionally low, conforming to the minimum figures set by Chittenden, and amounting to about 40 gm. of protein per day. Contrasting these Bengalis with some of the other peoples who consume protein more liberally and also have a superior physique, McCay has reached the conclusion that the physical inferiority of his subjects is directly attributable to the low plane of nitrogenous metabolism on which they subsist. The low protein standard has resulted in a bodily deterioration of most threatening aspect.

Here, at length it might seem as if the advocates of protein economy had received a setback by an experiment in daily life carried out on a large scale and over a sufficient period to carry conviction with it. An unbiased inspection of the facts, however, warns us to be cautious in formulating our conclusions. McCay found that his subjects were in nitrogenous equilibrium despite the confessedly low protein intake. In other words, there were no losses of nitrogen from the body notwithstanding the wretched condition of the individuals. This fact of itself might make one question whether after all the protein level of the diet is at fault in these cases. This suspicion is strengthened by an inspection of the general character of the Bengali diet. The natives subsist almost entirely on rice and dhall, a kind of legume apparently characterized by its indigestibility and extreme unsuitability as an adjuvant to the diet. No less than one quarter of the ingested protein remained unutilized, giving opportunity for the most objectionable alimentary conditions in the form of irritating and continuous putrefactive changes Diarrheas and inevitable pathologic intestinal phenomena were regularly observed If any diet has been singularly inappropriate from a qualitative standpoint, the descriptions of McCay indicate that it is to be found among these Bengalis

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[1] A review of some of the conflicting [illegible] Mendel, L. B. [illegible]

The cited facts should warn us against any hasty acceptance of the broad conclusion that protein is the most important factor in physical development and the general welfare of mankind There are too many complex factors, aside from mere quantity or composition, to warrant these hasty judgments The foregoing considerations are not necessarily to be accepted as decisive in the protein minimum controversy Indeed, they rather constitute a confession of "not proven" The lesson lies in the admonition against superficial judgments and the necessity of approaching the data with objective scientific critique

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THROMBOSIS AND EMBOLISM AFTER OPERATION FOR APPENDICITIS

In twenty-two out of 188 cases of operation for appendicitis, Bull[1] observed the development of thrombosis, his was followed by pulmonary embolism in fifteen, with two deaths On the basis of this experience as a text Bull presents an exhaustive and instructive discussion of postoperative thrombosis and embolism especially in relation to appendicitis In explanation of the apparently large proportion of this complication it may be pointed out that all the cases, which are unselected, occurred in the private practice of the same surgeon and were observed with special care, hence it is highly probable that many instances of thrombosis and embolism were recognized which under other circumstances would have escaped notice

In this series, only embolism of the lungs is considered, as there were no cases of embolism in the portal system In nine of the twenty-two cases the source of the emboli was manifest thrombosis mostly in the left femoral vein, which was affected six times, but also in the right femoral vein and in the veins of the muscles of the leg, in thirteen cases the source of the emboli is referred to occult thrombosis in the veins about the incision in the pelvic veins, or in the vena cava, etc In the two fatal cases the seat of thrombosis was found to be in the pelvic veins Nearly all the instances occurred in patients past 30 years of age and more often by far in women than in men There was no noteworthy difference in the frequency of thrombosis and embolism in patients operated on during the interval as compared with those operated on during the acute attack, but the tendency to thrombosis seemed greater in the severe acute cases than in the milder, and especially so far as concerns femoral thrombosis Whether thrombosis in any of these cases had started before the operation cannot be stated

Of the symptoms and signs of manifest and palpable thrombosis it is not necessary to speak Outside of embolism the most important symptoms of occult postoperative thrombosis are a slight irregular rise of temperature without manifest cause and mild general disturbances There may be no reliable symptoms until pulmonary embolism suddenly throws light on the situation The symptoms caused by pulmonary embolism depend on the size of the embolus The phenomenon of fatal pulmonary embolism needs no portrayal at this time, its occurrence after a satisfactory operation and when the patient is well along the road to recovery is one of the great calamities in surgery The symptoms caused by medium and small emboli lodging in the lungs are, in general, pain in the precordium or epigastrium, one side, or back, depending on the place of lodgment, associated with more or less uneasiness, dyspnea and rise of temperature, followed by hemoptysis if hemorrhagic infarction develops, in which case certain evident physical signs are usually present It would seem as if pulmonary embolism should be easily detected, but doubtless cases often are overlooked and the symptoms attributed to rheumatism, neuralgia, pneumonia or nosebleed, the careful observer, however, will not be misled by superficial resemblances if he is intent on discovering the real cause of such postoperative disturbances even when seemingly slight Postoperative thrombosis is usually not dangerous as to life, although complete recovery may require a long time, when pulmonary embolism takes place, the prognosis is uncertain because there is danger of several attacks

The most obscure phase of postoperative thrombosis is its etiology unless one accepts the view now so generally prevalent that it always results from infection Although attractive in many ways, this view leaves many facts unexplained Among these may be mentioned especially the immunity to thrombosis in the young, the comparative frequency of the complication after laparotomies, its occurrence after clean operations as well as operations for infective conditions—it is two or three times as frequent after aseptic operations for myofibroma of the uterus as after removal of infected adnexa—and the fact that it is five or six times as frequent in the left femoral vein as in other large veins It is remarkable also that the emboli which form as a consequence of postoperative thrombosis comparatively seldom suppurate Manifestly, infection alone is not an adequate explanation of all these peculiar characteristics of postoperative thrombosis Bull discusses this aspect of the subject fully He reaches the tentative conclusion that postoperative thrombosis may result without infection and that the underlying conditions are largely of mechanical nature, the evident result being interference with the circulation of the blood in the veins In favor of this view he brings forward a number of facts and considerations, of which the following may be mentioned. With advancing years chronic changes usually develop in the veins of the pelvis and the lower extremities, which result in localized thickenings and dilatations and thus favor thrombosis by producing eddies and stasis in the blood-current. This circumstance probably goes far toward explaining why postoperative thrombosis occurs so much more frequently after the age of about 30 than before. The operation of laparotomy in itself tends to interfere with the return circulation by inducing superficial respiration, meteorism and changes in the vascular tonus. With the patient in the recumbent position the current in the femoral veins is hindered more or less as they cross the pubes, and the greater frequency of thrombosis in the left femoral and iliac veins no doubt is connected intimately with their anatomic relations. The left common iliac vein empties into the vena cava at a more obtuse angle than the right and is crossed by three arteries, each beat in which may influence the venous current. These anatomic conditions were discussed recently by Kistler.[2] Whether changes occur in the composition of the blood, owing perhaps to the anesthetic and other factors, is not definitely known. At all events, the apparent importance of mechanical conditions in the development of postoperative thrombosis suggests that bandages and positions that tend to restrict the circulation in the veins most often affected should be avoided so far as possible. The necessity of absolute quiet when there is danger of embolism is self-evident. Finally, Bull's contribution emphasizes once more the really unbounded opportunity possessed by every practitioner to make substantial additions to our knowledge by systematic observation and careful study of his clinical material.

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[1] Bull Supplement to Norsk Mag. f. Lægevidensk. July 1912 abstr in The Journal A. M. A., Aug 10 p 492

OXYGEN AND PULSE RATE

Oxygen therapy has in some way or another entered into the experience of almost every physician, yet we doubt whether any clear conception of the actual rôle which the gas plays is formulated by many who administer it. Much has been written about oxygen inhalation, but the majority of the contributions to the literature of this subject are not founded on the solid basis of either experiment or accurate clinical records. Critical investigation which will place the subject of oxygen therapy on a sound basis is much needed.

In view of the efficiency of hemoglobin as an oxygen-carrier and the liberal supply of the gas furnished by the respiration of ordinary air, it would seem scarcely possible to increase the actual consumption of oxygen by still further increasing the oxygen in the air inspired. In a careful investigation of the effects of breathing oxygen-rich gas mixtures, in the Boston Nutrition Laboratory of the Carnegie Institution of Washington, Benedict and Higgins[1] note that there is no apparent difference between the metabolism as indicated by the gaseous exchange (i. e., the carbon dioxid output, oxygen consumption and respiratory quotient) and the metabolism when breathing ordinary air. Furthermore, there is no change in the character, depth or frequency of the respiration as compared with the same factors when breathing ordinary air. One observation, however, is striking, namely, the lowering of the pulse-rate as higher and higher percentages of oxygen are breathed. The decrease is quite notable and has been verified by Parkinson[2] in England. After the oxygen is stopped the pulse-rate at once increases and almost regains the original rate in fifteen minutes.

The explanation of this action of oxygen is difficult. Perhaps, as Parkinson believes, the heart-muscle supplied with excess of oxygen itself works at greater advantage and also provides the amount of oxygen needed by the tissues with less expenditure of energy, i. e., by fewer beats. Yet how are we to understand that an already well-oxygenated blood is to take up an additional excess? Although the hemoglobin as an oxygen-carrier is not noticeably affected, perhaps the blood-plasma takes up a larger amount and thus facilitates the oxygenation processes.

It is suggested that in those cases of disease of the heart and lungs in which the pulse-rate is increased, the administration of oxygen will as a rule be found to reduce it. Doubtless the greatest effect is produced when the heart is ill-supplied with oxygen. In any event, the now well-substantiated influence on the pulse-rate when oxygen-rich mixtures are inhaled deserves to be kept in mind for its therapeutic possibilities.

WHERE ARE THE ETHEREAL SULPHATES FORMED?

More than thirty-five years have intervened since Baumann's discovery of ethereal sulphates as a constituent of the urine. These compounds and particularly the one familiarly known as indican, have come to possess a prominent significance in clinical medicine as well as in physiology. The conjugated sulphates are associated with putrefactive processes in the alimentary tract and represent one of the forms in which toxic products are paired and eliminated from the organism. Phenol, cresol, indol and skatol are known to unite with the sulphuric acid radical in the course of their path toward excretion, and the ethereal sulphates have often been taken as an index of the extent to which these undesirable compounds are encountered as the outcome either of alimentary or of metabolic changes.

Although the gastro-intestinal canal has been clearly connected with the genesis of the more or less toxic products which are ultimately eliminated as sulphate derivatives, the seat of their synthesis into the urinary end-product has not been so conclusively determined Like many other text-book traditions, the association of the formation of the ethereal sulphates with the liver has been handed down from edition to edition It is of course, a natural sequence to ascribe this synthetic function to the liver, an organ so closely connected through the portal circulation with the alimentary tract Furthermore, there is some experimental justification for the commonly accepted view Perfusion experiments with the products under consideration carried out on excised livers have indicated a synthesis in the organ

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[2] Kistler, H. D.: Thrombophlebitis of the Left Leg, The Journal A. M. A., August 10, p. 437.

[1] Benedict, F. G., and Higgins, H. L.: Effects on Human Metabolism of Breathing Oxygen-Rich Gas Mixtures, Am. Jour. Physiol., 1911, xxviii, 1.

[2] Parkinson, J.: The Effect of Inhalation of Oxygen on the Rate of the Pulse in Health, Jour. Physiol., 1912, xliv, 54.

Lade[1] has attempted to learn whether the production of the ethereal sulphates is confined to the liver by studying their output in animals whose hepatic functions have largely been excluded by an Eck fistula operation When the portal blood is diverted in this way from the liver the excretion of the sulphates by no means ceases Even when the liver is still further damaged by administration of phosphorus they may be produced in undiminished amounts Evidently, then, the liver is by no means necessary for the conjugation leading to the elaboration of the ethereal sulphates Whether the reaction here involved is common to various tissues of the body or is confined to the intestine, within which the products to be taken care of arise, remains to be determined In any event the liver still has enough activities in its list of physiologic duties to keep it out of mischief

FINGER PRINT IDENTIFICATION

Francis Galton published[2] his "Finger-Prints" in 1892, and soon afterward his "Index of Finger-Prints" His theory is that the chance of the finger-prints of two individuals being identical is less than one in sixty-four billions If, therefore, two such prints are compared and found to be identical, nothing in human affairs can be surer than that they are the prints of the same person, if they are not identical they must belong to different persons The chance of error here is infinitesimal, and is still further eliminated if prints of three or more fingers are taken The only requisite seems to be that they be taken clearly enough to bring out all the lines It is considered that these lines and prints are more enduring than any other marks of the body, they do not vary from youth to age, they persist even after death — at least until decomposition has set in Injuries alone change them, but the scar on a cut that has been printed would be an additional identification

This finger-print system of identification is by some accredited to Bertillon, but erroneously, it would seem It was Galton, that amazing genius in scientific detail and in the utilization of data, who proposed and first reduced the finger-print method to a system, and when he made it known to Bertillon, the latter was for a long time skeptical as to its utility, preferring his own system of measurements

The finger-print system is the surest method of identifying criminals, and such evidence has been deemed incontrovertible in judicial procedures About a month before Galton died this method was temporarily under a cloud A man was charged in an English police-court with loitering, supposedly in order to commit a felony When a previous conviction was sought to be established against him by the production from the police records of finger-prints identical with his, he handed in papers tending to show that he had been serving in the army at the time of the alleged conviction, whereupon he was promptly discharged This event was naturally disconcerting to finger-print enthusiasts, who regarded the method as infallible, many skeptics declared, reasonably enough, that this simple failure ought to discredit the whole system Nevertheless, a week later it was ascertained and proved beyond peradventure that this culprit had stolen the papers of another army man, what is more, it was shown clearly by another mark of identification, as well as by his handwriting, that he was without any manner of doubt the man with whom the police had sought to identify him

But the finger-print system has a number of uses entirely unrelated to criminal procedures Railways are using it as a means of identifying employees Banks now identify foreigners in this way By means of this system some of the government employees in the Canal Zone sign receipts when their salaries are paid, as do also Indians who cannot write their names The substitution on documents of the finger-print for the mark of the person who cannot write his name would be a great advance The latter, which is just a cross, is no identification at all, the finger-print is even more positively and unforgeably a signature than the writing of the name

Capt Joseph A Faurot, who heads the identification bureau of the New York police department, urges a much wider utilization of the finger-print system than at present obtains He would have every new-born babe and every school child finger-printed as a basis for really adequate vital registration Such prints will absolutely identify the individual from the cradle to the grave The print of the baby and of its mother differ unmistakably The measurements will be enlarged with growth, but otherwise they never change It was recently objected in the metropolis that persons suspected of crime, but not yet convicted, should not be obliged to be finger-printed, but the leaders of the Men and Religion movement in that city, believing it important for the innocent as well as for the guilty to have it ascertained whether they have ever been under arrest, offered to persuade all men of the churches and in fact all residents whom they could influence, to place the impression of their fingers in the records of the police department.

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[1] Lade I Ueber die Bildungsstätte der Aetherschwefelsäure im Tierkörper Ztschr f physiol Chem 1912 lxxix 331

[2] Galton Francis Finger Prints London MacMillan Co 1892

Captain Faurot would do away with lost identity in the United States by establishing a central bureau to which the finger-prints of every unit of the population must be forwarded for classification, to this central bureau, which should be a federal institution, all other bureaus — state, county and municipal — would be tributary. There would be two sets of prints of each individual, one deposited at the local bureau, the other at Washington.

Among the many advantages of such a plan would be the possibility that the numberless unknown unfortunates found dead might be identified. This system might solve those puzzles which aphasia and insanity are constantly presenting — cases continually increasing in number by reason of the great strain of our present-day civilization. The crime of desertion might be prevented were the mother's and her infant's finger-tips printed on the same card. The finger-printing of policyholders would prevent fraudulent death-claims. Finally, if this system ever becomes part and parcel of civilized life, it will have the further advantage of furnishing the readers of Mark Twain's "Pudd'nhead Wilson" with the fantastic pleasure that comes from seeing fiction daily realized in fact.

Current Comment

ABSORPTION FROM THE STOMACH

The possibility of absorption from the stomach has been debated from time to time without leading to any convincing conclusion. Set over against the popular assumption that absorption can proceed from any part of the gastro-intestinal canal are numerous experimental researches in which evidence of the disappearance of alimentary contents through the gastric wall has been entirely lacking. Water is not absorbed from the stomach ordinarily to any extent. Whatever amount is introduced therein can be recovered quantitatively as it passes through the pylorus into the duodenum. Alcohol, on the other hand, is known to disappear from the stomach rapidly even when the pylorus is closed, and there has been evidence furnished to make the gastric absorption of compounds in alcoholic solution appear more likely than is the case for ordinary aqueous fluids. The fact that absorption, if it ordinarily does go on to any extent from the stomach, has escaped the observation of so many competent observers, makes one somewhat skeptical as to the extent to which it really is a normal feature of alimentation. A positive finding, however, must almost invariably supplant a negative hypothesis. Folin and Lyman[1] have lately furnished some convincing indications that the familiar products of protein digestion can be absorbed directly from the stomach. These observations were made on a stomach with a closed pylorus, and therefore need not be applied with immediate reference to the experiences of the normal alimentary processes, furthermore, ordinarily the products of proteolysis found in the stomach have scarcely reached the amino-acid stage which the products studied by the Harvard investigators represented. The essential point rather is the demonstration that the gastric wall is permeable to simple nitrogenous compounds in watery solution. Strange to say, creatinin, which forms a frequent component of the food intake in the form of meat products, appears to lack absorption by the stomach though it is readily taken into the circulation from both the large and the small intestine. This serves as a reminder of how much yet remains to be learned respecting the unique place of creatinin and its chemical relatives in the nutritive processes.

CONGRESS RECONSIDERS

We recently[1] commented on a sweeping provision inserted in the appropriation bill for the District of Columbia whereby no money appropriated by that or any other act could be expended for membership fees or dues or for the expenses of attendance of any officer of the government at a meeting of any society or association. It was pointed out that this enactment would exclude the United States government as such, from participation in a number of scientific congresses, both national and international and would result in the scientific isolation of our government. It would seem that this protest has not been in vain. In the act making appropriations for the sundry civil expenses of the government, Section 10 revokes this objectionable prohibition with respect to the current fiscal year, except so far as the payment of membership fees or dues is concerned. This section also provides that a detailed statement of all expenditures for the expenses of attendance at such meetings from June 30 until Dec 1, 1912 shall be submitted to Congress on or before Jan 1, 1913. This would indicate that Congress is now willing to inform itself in the matter before taking action on this important question.

OVARIOTOMY — A REMINDER

It has been said that "pelvic and abdominal surgery began with ovariotomy; ovariotomy began with McDowell." Now that the last century's monumental achievements in abdominal surgery have sunk almost into commonplace through frequent repetition, the tale of the prejudiced opposition to this epoch-making procedure seems almost incredible. It is said that while McDowell was performing the first ovariotomy a little over a century ago, a crowd of excited and angry men waited in the streets of Danville for the result, ready to show little mercy to the courageous surgeon if his "victim" succumbed. That perhaps seems less strange than the fact that W. L. Atlee thirty or forty years later "was pointed at as a dangerous man—even as a murderer" for his employment of the same procedure. The semicentennial of the first ovariotomy in France, mentioned by our Paris correspondent this week, now reminds us that over fifty years after the first ovariotomy was performed by a backwoods surgeon in the country, the operation was unknown in France except by reputation, which branded it as "criminal" A curious, yet not incongruous, passage in this strange chapter of surgical history!

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[1] Folin, O., and Lyman, H.: Absorption from the Stomach, Jour. Biol. Chem., 1912, xii, [illegible]

[1] An Unwise Economy, THE JOURNAL A. M. A., Aug. 10, p. [illegible]

A GOOD PROPHYLACTIC EXHIBIT

That the average citizen in towns of 7,500 or more can be led to take an active interest in public health work, was demonstrated recently by the combined work of the various philanthropic and charitable agencies of Waynesboro, Pa , in an interesting and instructive campaign for the lessening of infant mortality The exhibit was ocular as far as it was possible to make it so, supplemented by lectures given by trained nurses connected with the exhibit, by local physicians in the town, and by representatives of the state health department The exhibit was advertised under the name of "The Baby-Saving Show," and it well deserved the name The entire program and nearly every lecture given were published each day in the local papers Similar "baby-saving shows" were held in many towns in Pennsylvania following the original show in Philadelphia, and for many of them portions of the exhibit used in Philadelphia were borrowed It is gratifying to see the increase in work of this kind It pays well in lives saved and sickness lessened

HYGIENE AT STATE AND COUNTY FAIRS

Missouri, through her state medical society, has taken up the matter of educating the public in hygienic and sanitary matters by providing a course of lectures and an exhibit at the state fair Two half-hourly lectures are to be given each day of the fair by some physician or veterinarian on various medical and sanitary subjects pertaining to human beings and animals, supplemented by moving-picture exhibits along the same line The *Journal of the Missouri State Medical Association* appropriately recommends that county medical societies, cooperating with the county boards of health, county superintendents of schools and other county officers whose duties bring them in touch with questions of municipal sanitation, arrange similar courses of lectures and exhibits at county fairs as a means of popular education State and county fairs, although held for public educational purposes, usually confine their attention to stock and other material interests, to the neglect of the most important interest of all, the physical welfare of the human animal

Medical News

ALABAMA

Accidents.—Dr John L. Stockdale, Stockdale, fell at his home August 8 fracturing his right hip ——Dr R. B Nelson, health officer of Birmingham, fractured his leg while exercising at the Athletic Club, recently

Hospital Plans Completed.—The plans for the new hospital at Bessemer have been completed and the institution is to be known as the Elizabeth Duncan Memorial Hospital, in memory of the mother of Dr T F Robinson Work on the erection of the new building will be started very soon.

Personal—Dr C A. Crote, Greensboro, has been appointed a field worker for the State Board of Health under the Hookworm Commission ——Dr R. V Taylor, Jr , Mobile, has started for his new field of work in the Baptist Hospital at Yang Chow, China ——Dr A. W Cawthorn, Selma, is reported to be critically ill with cerebral hemorrhage

Approves Bond Issue for Hospital.—The Jefferson County Medical Society at its meeting August 6, adopted resolutions regarding the adopting of the one hundred thousand dollar bond issue for the proposed Hillman Hospital Annex, Birmingham The hospital, with an equipment for 72 patients, is overcrowded all the time, caring daily for from 90 to 100 patients

COLORADO

Children's Hospital Association—At the annual meeting of the medical board of the Children's Hospital Association, Denver, Dr George B Packard was reelected president, Dr Henry A. Sewall, vice president, and Dr T E Carmody, secretary The board recommended that steps be taken for the erection of a building with a capacity for one hundred patients

Another Medical College in Colorado?—It is reported that incorporation papers have been taken out for a "Thompsonian Medical College" to be located at Paonia, Colo , with a stated capital of $100,000 Among the names of the incorporators published is the name of 'Dr R. S Clymer," who, it will be remembered, was connected with the fraudulent "Twentieth Century College of Medicine," a correspondence institution operated at Guthrie, Okla., and of which the charter was revoked in 1904

ILLINOIS

New Buildings for Dunning—The State Board of Administration has approved plans for two buildings at the Chicago State Hospital, Dunning, each to cost $50,000, to replace those recently burned

County Hospital Examination Declared Unfair—As the result of complaints concerning a civil service examination held last December for the selection of members of the attending staff of Cook County Hospital, a committee of physicians was appointed to make a careful investigation of the facts They have declared the examination unfair and recommended its annulment The Board of County Commissioners accordingly declared the examination void, and will hold a new one

Chicago

Personal.—Dr Julius Grinker leaves Chicago September 7 for the East, on his way to Europe ——Dr B Barker Beeson has returned from Europe ——Dr William A Mowry has been appointed a house physician at the French Lick Springs Hotel ——Dr E A Fischkin started for Europe, September 4

Jubilee of Scandinavian Society—The twenty fifth annual meeting of the Scandinavian American Medical Society will be held in Chicago next month Plans for the anniversary meeting include a scientific meeting and the distribution of a memorial volume detailing the work of the Scandinavian medical men of Chicago from the earliest days

INDIANA

Tuberculosis Conflict—The county board of St Joseph County has appropriated $15,000 for the sanitarium for tuberculosis and tentative plans for the building have been drawn This is the result of the earnest work of the local society for three years The tuberculosis camp at present has accommodations for thirteen and has a large waiting list ——At a meeting of Spanish American War veterans in Lafayette, August 6, a campaign was started to build a tuberculosis sanatorium at the Indiana State Soldiers' Home to cost about $10,000 The local veterans have subscribed $500 of the amount.

Personal—Dr Herman G Morgan has succeeded Dr C S Woods as city sanitarian of Indianapolis ——Dr Lynn Rogers, Fort Wayne, has been appointed a house physician at French Lick Springs Hotel.——Dr C S Woods, formerly city sanitarian of Indianapolis, was presented with a gold watch and chain by the members and employees of the board, August 16 The presentation speech was made by Dr E. B Mumford.——Dr M S Canfield, Frankfort, has been appointed local surgeon of the K. M and W Traction Line ——Dr C B Stemen, Fort Wayne, has been reelected president of the Elida Pioneer Society ——Dr and Mrs A P Roope and family, Columbus, have sailed for Europe ——Dr A. O Ward Indianapolis was knocked down by a wagon, August 10, and painfully injured.

IOWA

New Officers—Botna Valley Medical Association at Atlantic, August 22 president Dr Frank Hanna, Walnut, secretary treasurer, Dr A Weaver, Cumberland.

Gives Funds for Hospital—The Fort Madison Medical Society, at a special meeting August 19, voted an appropriation of $500 from the treasury for the purchase of equipment for the new Sacred Heart Hospital

Personal—Dr H A. Steckel, third assistant physician at Mount Pleasant State Hospital, has resigned to accept a position as assistant at the Kings Park State Hospital, Long Island, New York——Members of the Dubuque County Medical Society gave a farewell banquet in honor of Dr E R Jackson, Dubuque, who is about to leave the city for Oregon

MARYLAND

Crusade Against Impure Water and Milk.—The State Board of Health has commenced a crusade against impure water and milk, and will make examinations of all water throughout the state

State Entrance Examination.—Maryland medical and dental college entrance is now in the hands of the state board An examination will be held at the hall of the State Medical Society, September 12 14, in charge of Mr Isaac L. Otis of the department of civics and history of the Polytechnic Institute Those who can show evidence of a four year high school course will be exempt from this examination for entrance to the medical schools and those who show a three year course will be exempt from examination for entrance to dental schools

Baltimore

Changes in Health Department—Drs John H Von Drelle, J K. Ballard, C Franklin Jones and J Harry Ullrich have been appointed health wardens, vice Drs Vernon F Kelly, William Caspari, W D Olmstead and Marshall G Smith——Dr Harry Kolb has succeeded Dr J Howard Iglehart as inspector of schools

Personal.—Dr William S Thayer has been appointed a member on the commission for the study and prevention of malaria in the South——Dr Thomas R Brown has been placed in charge of the bacteriologic and research department of the Ohio State Hygienic Laboratory, Columbus——Dr M. L. Todd who has been ill in St Agnes Hospital with typhoid fever, is reported to be convalescent——Dr Randolph Winslow has returned from a trip to Panama, Cuba Jamaica and Costa Rico——Dr William Royal Stokes has recovered from his recent illness and resumed his duties as city bacteriologist——Dr Isaac M Macks has been appointed pathologist at the University of Maryland.

NEW YORK

Higher Preliminary Requirement Adopted—It is reported that the New York regents at a meeting held August 29 voted that, after Jan 1 1913, an applicant for a medical student certificate qualifying for admission to a medical school, must have completed a year's study in physics, biology and inorganic chemistry

Hospital Contract Held Up—The State Board of Charities has served an injunction preventing the awarding of the contract for the kitchen and dining hall to be added to the tuberculosis pavilion of the Metropolitan Hospital on Blackwell's Island because the plans for the buildings were not submitted to the State Board of Charities The Commissioner of Charities of New York had the opinion of counsel that it was not necessary to submit plans of hospitals to the Board of Charities of the state The case will be tried on September 7

New York City

Held for Suspected Cholera.—On account of a case of disease on board the steamer *Martha Washington,* which arrived in New York August 13 from Palermo, the steamship was held in quarantine until the test for cholera had been made

Private Hospital for the Bronx.—Jacob H Schiff, Sol R. Guggenheim Ferdinand Sulzberger and Samuel Sach have each given $50 000 for a fund for the construction of a private hospital for persons suffering chronic diseases, to be built by the Montefiore Home in the Bronx

Wall Street Men Vaccinated Against Typhoid.—Since the recent outbreak of typhoid fever in Wall Street, one firm employing about twenty persons, asked that they submit to the administration of typhoid antitoxin This they readily did It is understood that a number of other houses will follow the same course

Fish of Flushing Bay a Menace.—A number of cases of ptomain poisoning have been attributed to fish taken from Flushing Bay All of the fish and shell fish in the bay were killed some years ago when factories were established on the bay Recently a dye works moved away and an attempt was made to restock the bay with fish The Board of Health of Queens is making an investigation and, if suspicions are verified, will prohibit the use of fish taken from the bay

Saving the Babies—The Babies' Welfare Association continues to keep ahead of its record of last year For the week ending August 23 there were 358 deaths of infants under one year of age against 361 for the corresponding week of 1911 During this week there were nine deaths among babies cared for by the milk stations In an appeal for funds to continue the work among tenement babies sent out by the New York Association for Improving the Condition of the Poor, this organization announces that it has spent during the last ten months $20 000 for milk for sick babies and that no administrative or investigation work is included in this sum

Personal.—Dr William H Tolman, director of the American Museum of Safety, has returned from Europe bringing with him a collection of articles presenting the latest ideas in life saving apparatus. Dr Tolman has also brought a number of wax models showing the effects of various occupational diseases——Dr and Mrs G F Blauvelt Nyack, N Y Dr and Mrs W T Alexander, and Dr and Mrs L A Conner have sailed for Europe——Dr W S Russell Dr W Benham Snow Dr and Mrs G G Rambaud, Dr W B Brinsmade Brooklyn and Dr and Mrs Howard C Taylor have returned from Europe——Dr J Wallace Beveridge has been suffering with mastoiditis for the past three weeks His condition is said to be very satisfactory——Dr David E Hoag has returned after a three weeks' automobile trip through the Canadian provinces——Dr Le Roy Broun has returned from Europe——Dr Charles B Meding of the Harlem Eye Ear and Throat Hospital sailed for India September 1 and after studying cataract extraction at Amritsar, will visit China and Japan

OHIO

Personal—Dr Cook, National Soldiers' Home Dayton has been appointed third assistant physician at the Mount Pleasant (Iowa) State Hospital——Dr Dana O Weeks has been appointed health officer of Marion——Dr L. A Lemmon, East Liverpool, was seriously injured in a collision between his automobile and an electric car, August 2——Dr E. R Crew, Miamisburg, has succeeded Dr J C George resigned as superintendent of the Miami Valley Hospital Dayton——Dr H G Sherman, head of the medical supervision department of the public schools of Cleveland, has resigned.——Dr Paul W Tappan, Dayton, has been commissioned captain M C O N G——Dr Arleigh C Delaplane night physician at the State Penitentiary, Columbus, has resigned to accept a position as assistant physician in the volunteer relief department of the Pennsylvania System——Dr J W Bunn West Union, is reported to be critically ill with cerebral hemorrhage——Dr William C Stafford, Youngstown is reported to be seriously ill

PENNSYLVANIA

State Hospital Soon Ready—The Rittersville State Hospital which has been under construction for more than ten years, is about to be opened to receive patients September 14

School Dispensary Established.—A school dispensary is to be opened in the administration building of the board of education at Reading to treat school children for minor defects It will be under the care of Dr Heister Bucher chief medical inspector of city schools

Sanatorium Contracts Awarded.—The contract for the Hamburg State Tuberculosis Sanatorium was awarded August 22 to Buffalo contractors for $510 629 This contract calls for the construction of an administration building, power house laundry and two wings with initial capacity of four hundred patients——Contracts have been awarded for a new building at White Haven Sanitarium to cost $2[illegible]000——The contract for the refrigerating plant of the Cresson Sanitarium has been given a DeKalb Ill company for $3[illegible]10

Personal.—Dr D P Maddux, Chester has been reappointed a member of the State Board of Education and Licensure and Dr William A Stewart, Pittsburgh has been appointed a member of the board——Dr I Riley Bucher Lebanon celebrated his eightieth birthday anniversary August 2[illegible]——Dr Thomas P Martin Mayfield was operated on for appendicitis at Dr Burns' Private Hospital Scranton August [illegible]——Dr Edward Kerr East Downington has been elected chief physician at the Chester County Hospital——Dr Ernst Zueblin pathologist of the Tuberculosis League Hospital and Dispensary and a member of the medical staff of the Allegheny General Hospital Pittsburgh has been appointed a member of the staff of the University of Maryland Balti more——Dr Charles F Palmer, Chambersburg, is ill in the Chambersburg Hospital——Dr Gyula Ullmann, Chester, is reported to have received a bronze medal from the French government in recognition of research work on mineral waters in France——Dr J O'Malley, Scranton, has been appointed resident physician at the Pittston Hospital and Dr W H. Berge, Avoca, has been appointed a member of the hospital staff

Philadelphia

Chemists to Visit City—Following the eighth International Congress of Applied Chemistry which opens in Washington, September 4, the members expect to spend several days in Philadelphia inspecting research laboratories and visiting the leading industrial plants of chemical importance in the city The visitors reach Philadelphia September 16, and will be welcomed at Independence Hall by the mayor

Personal.—Dr John M Baldy has been reappointed a member of the State Board of Medical Education and Licensure.——Dr Charles H. Dwyer, who was operated on recently in the Philadelphia Hospital, is rapidly recovering——Dr R Tait McKenzie has executed a large bronze medallion known as "The Joy of Effort" which has been presented to the Swedish nation by the American committee and is now being mounted in granite in the wall of the stadium at Stockholm It commemorates the fifth holding of the Olympic games

TENNESSEE

Appeal for Sanatorium.—The new tuberculosis sanatorium of Chattanooga and Hamilton County is almost completed The estimated expense of the institution is $10,000 a year Of this amount the county has agreed to pay $5,000 and an appeal is being made to the city to make a similar appropriation

Personal—Dr George H. Bandy, Nashville, has been elected president of the Negro Board of Trade——Dr Cooper Holtzclaw, Chattanooga, has returned from Europe——Dr J A Albright, Nashville, for fifteen years secretary of the State Board of Health, has accepted a position with a pharmaceutical house in Philadelphia——Dr Henry M. Green, Knoxville, has returned from Europe

Hospital Bond.—The Emerson Hodgson Memorial Hospital, Sewanee, was formally opened, August 6 The building, which is to replace the one burned last year, has accommodation for fifty patients and has been erected at the cost of $30,000——Dr John A Witherspoon Nashville, president elect of the American Medical Association made an address at Gallatin in the interest of the Galloway Memorial Hospital, Nashville Sumner County has subscribed about $7,000 toward the hospital

Trachoma in Nashville Schools—A vigorous campaign has been started by Dr E L Roberts, public school inspector in Nashville, and Prof J J Keyes, superintendent of education, for the eradication of trachoma from public schools of the city In this work they have the cooperation of the City Board of Health and Dr W E Hibbett city health officer More than 2 per cent of the white children in the schools are said to be affected with the disease which, however, very rarely attacks colored children

UTAH

State Meeting Date Changed—The date of the meeting of the Utah State Medical Association at Ogden has been changed from October 1 2 to September 24 25

Society Endorses Sterilization of Criminals—At the August meeting of the Utah County Medical Society held in Provo resolutions were adopted endorsing the sterilization of those who are criminals or who are hopelessly insane

Health Department Reorganized—The reorganization of the health department of Salt Lake City became effective September 1, Dr Samuel G Paul becoming health commissioner Dr H B Sprague, assistant health commissioner, and Drs R. W Fisher and Clarence Snow, members of the board of health

VIRGINIA

Personal.—Dr William H Parker has been elected police commissioner of Richmond——Dr M P Doyle has been elected chief medical inspector for the public schools of Norfolk——The residence of Dr W L. Ould Concord Depot, was burned to the ground August 16

Memorial Association Organized.—The Rawley W Martin Memorial Association has been organized at Lynchburg for the purpose of erecting a memorial shaft to the late Dr Rawley M Martin who was for several years president of the State Board of Health The following officers were elected president, Dr A. W Terrell, Lynchburg, vice presidents, Drs A. R. Long, Lynchburg, L E Harvie, Danville, J W Whitehead, Chatham, G Tucker Harrison, Charlottesville, S C Reed, Chatham, and R. E Ramsey, Toshes, Dr R. S Martin, Stuart, secretary, and Dr Randolph Harrison, Lynchburg, treasurer

GENERAL

Obstetricians and Gynecologists.—The American Association of Obstetricians and Gynecologists will hold its twenty fifth annual meeting at Toledo, September 17 19, under the presidency of Dr X. O Werder, Pittsburgh. The headquarters will be at the Hotel Secor

Southwest Physicians to Meet—The seventh annual meeting of the Medical Association of the Southwest, whose membership is made up by physicians of Missouri, Kansas, Oklahoma, Arkansas and Texas, will be held in Hot Springs, Ark, October 8 10, under the presidency of Dr A L Blesh, Oklahoma City The profession of Hot Springs is making great preparations to make the meeting a professional and social success, and the railroads have offered reduced round trip rates

Naval Medical Reserve—On August 12, the Senate passed without debate a bill to create a medical reserve corps and thereby increase the efficiency of the medical department of the Navy The institution of this corps will place the medical corps of the Navy in close contact with eminent members of the profession throughout the country as has already been the case in the Army, thus enabling the Navy to call them into consultation, and to profit by their advice when emergencies arise

Report on the Country's Epidemic Diseases—From August 21 to 27 no additional cases of plague were reported from Porto Rico Total number of cases to date is forty nine Last case of plague reported from Havana, July 22, terminated fatally July 27, a total of three cases with one death No plague infected rats have been found in Havana to the date of the last report——The epidemic of poliomyelitis at Los Angeles has almost subsided, only ten cases being reported in the ten days prior to August 25 Buffalo still has some cases Cleveland also has a small epidemic which seems to be under control Many other cities and towns report cases of the disease——Los Angeles has had small pox in benign form since March, 1911, with two exacerbations of the virulent form in November and December, 1911, and in July and August, 1912 The disease has attacked almost exclusively persons not vaccinated and is of interest as showing the occurrence of the virulent type in a community where the mild form of the disease had existed for some time

Canal Zone Sanitation.—The report of Col W C Gorgas, M C U S Army and chief sanitary officer of the Isthmian Canal Commission, for June shows the lowest mortality rate among employees since the organization of the commission in 1905 The annual average death rate among employees per 1 000 for June has been as follows

1905	16 44
1906	41 55
1907	27 53
1908	12 35
1909	9 34
1910	10 66
1911	12 01
1912	6 84

The annual average death rate per 1,000 in Panama, Colon and the Canal Zone, including both employees and civil population, for June of each year has been as follows

1905	50 57
1906	51 89
1907	33 45
1908	29 17
1909	10 42
1910	20 38
1911	25 33
1912	22.88

The total number of deaths among employees in June was 28 of which 12 were from violence, and two each from dysentery malarial fever, pneumonia and tuberculosis No case of yellow fever, small pox or plague originated on, or was brought to, the isthmus during the month

European Physicians' Study Travel Tour in America—Last week in this department The Journal gave a list of those in a party which will make a tour of the principal cities of the United States, including a stay in Washington during the International Congress on Hygiene and Demog raphy The detailed itinerary of the trip was given August 24 In this connection it is interesting to give a short sketch of the German Central Committee for Physicians' Study Travels The idea of medical study travels originated with a French physician, Dr Carron de la Carrière, in Paris, in 1809, who was supported in this work by Professors Brouardel, Lannelongue, Landouzy, Fournier and others In Germany the idea quickly found fertile soil, and Hofrat Gilbert in Baden Baden assisted by Geheimrat von Leyden, Geheimrat Liebreich, Professor Meissner and Sanitätsrat Oliven became the officers of the organization Almost all clinicians of German and German Austrian universities, as well as the heads of the medical departments of all the German states and of Austria Hungary became members of the executive committee There are now more than 700 members Physicians who are occupied at home with their practice can hardly acquire sufficient knowledge of watering places and health resorts Books, lectures and advertising pamphlets give but imperfect ideas of such places To select a health resort for a patient the physician needs an accurate knowledge of the local medicinal agencies, the general surroundings and sanitation, the expense and the general atmosphere of the place. The study trips not only enable the physicians to secure this knowledge but also give them an agreeable vacation. The itineraries in Europe have been made out with the idea of economizing time and expense as much as possible Medical conventions are included in the trips, when possible, as well as provisions for social entertainments and sight seeing The work of the German Central Committee for Physicians' Study Travels extends now to the study of not only local conditions, climate, etc, of health resorts, but also social, economic, philanthropic, hygienic and civil institutions, factories, laboratories, mining plants, etc. The German Central Committee in the years from 1901 to 1911 has made twelve trips which included many parts of Europe This year the trip to America was decided on, whereby opportunity to attend the International Congress on Hygiene was given This year is the first time that wives and daughters are in the party The present officers of the German Central Committee are presidents Geheimer Ober Medizinalrat Prof Dr Dietrich (Berlin), K K. Regierungsrat Prof Dr Glax (Abbazia), Geheimer Medizinalrat Prof Dr His (Berlin), Geheimer Medizinalrat Prof Dr von Strümpell (Leipsic) The secretary general is Sanitätsrat Dr Albert Oliven

LONDON LETTER

(From Our Regular Correspondent)

LONDON, August 17, 1912

Plague in Liverpool Mistaken for Appendicitis

A boy aged 7 was admitted to the Royal Infirmary, Liverpool, and operated on for supposed appendicitis A gland was removed from the groin and found to contain plague bacilli The theory as to the source of infection is that the boy was bitten by a flea carried by a foreign rat The patient lived in the neighborhood of the docks, where there is a likelihood of foreign rats being brought in When his condition was discovered he was immediately isolated and three days later was removed to an infectious diseases hospital, where he is progressing favorably The strictest watch is now being kept at the Liverpool hospitals for cases of plague

The London School of Tropical Medicine

The London School of Tropical Medicine is making an appeal for $500 000 to provide for the equipment and more efficient carrying on of this work Founded in 1899 by Mr Chamberlain, then secretary of state for the colonies it has done remarkable work both in the form of research into tropical diseases and in the training of the medical officers of the colonies Additional laboratories and residential quarters for at least twenty more students are urgently required It is desired to raise a sum sufficient so that experts in protozoology, helminthology and entomology may continuously work in the tropics

The Bicentenary Celebration of the Medical School of Trinity College, Dublin

The bicentenary celebration of the Medical School of Trinity College, Dublin, which took place July 4 6 has been a brilliant success Delegates from most of the universities in the world—including Japan, Russia Finland, Sweden, Norway, Denmark etc —attended The universities of Ann Arbor Harvard and Pennsylvania in the United States, and McGill Manitoba Queen's and Laval, in Canada, were represented Sir William Osler, who represented the University of Oxford in proposing the toast of "the School of Physic in Ireland" referred to those brilliant days in the early part of the nineteenth century when the school of medicine in Dublin shone out in a way that perhaps no other school in these isles shone out After mentioning many names he considered that it was no disparagement to those great men to say that the imperishable memories of the Dublin school rested with the names of Graves and Stokes

The Registration of Births and Deaths With Reference to Infant Mortality

The Royal Statistical Society has issued the report of a special committee appointed by the councils of that society to inquire into the systems adopted in different countries for the registration of births (including still births) and deaths with reference to infantile mortality The report covers practically the whole system of registration and calculation of vital statistics It has been drawn up in four sections (1) a brief history of registration, (2) the practice of registration in general, (3) still births and (4) statistical method Information has been collected from many sources within the British Empire, from European nations from Japan Egypt the United States, Argentina Costa Rica Cuba and Uruguay The committee states that the answers dealing with the efficiency of registration convey with comparatively few exceptions opinions that registration is very fairly complete in the more settled countries at least The registration of still births is said to be not required by law in the United Kingdom, Jamaica New Brunswick, New South Wales New Zealand, Queensland South Australia, Tasmania Victoria, Denmark, Mississippi, New Mexico North Carolina and Virginia No legislature has up to the present, enacted any definition of still birth, and the only guidance afforded to those required to declare and inscribe such births in places in which their registration is compulsory is that afforded by regulations made by the various statistical offices It is suggested that it is desirable that an international definition of still birth should be adopted

The committee remarks that at the present time the principal function of vital statistics is the examination of the causes of unnecessary and preventable waste of life and (but not to so general an extent) sickness Vital statistics may, in effect, be regarded as taking the place of laboratory experiments in social physiology and pathology If such views be accepted as correctly representing the functions of statistics it is evident that reliable conclusions cannot be obtained unless the basic data are reliable and accurate and the methods of calculations used by different inquirers uniform or at least strictly comparable." There is a need of greater uniformity in the practice of calculating fertility and mortality rates as it is only by the comparison of carefully estimated and adjusted rates that questions affecting the health and welfare of nations can be studied The usual basis on which rates of infantile mortality are calculated is the ratio of deaths during the first year of life to births and the committee suggests that it is very desirable that the latter value should be universally used The following conclusions are drawn (1) that still births should be tabulated separately such tabulation to include, if necessary (a) the number of children born alive but registered as dead and (b) the number born in each successive week or month after the prescribed (earliest) time for registerable still births (2) that for general use the infantile mortality rate should be calculated from (a) the births of children born alive including if necessary those born alive but registered dead and (b) the number of deaths during the first year of life of children born alive including if necessary the children presented dead

Increase of Lunacy

The number of certified insane persons under care in England and Wales on Jan 1 1912 was 135 661 or 2,504 more than a year earlier This increase may be contrasted with that of 2 604 for 1910 of 1 766 for 1909 and of 2 703 for 1908 The average annual increase for the ten years ending Dec 31 1911, was 2495 and that for the five years ending on the same date 2 335 The increase for 1911 was therefore nine above that of the annual average of the decennium and 169 above that for the quinquennium On Jan 1 1859 there were known to be under care 30 762 persons certified as insane on Jan 1 1912 the number amounted to 135 661 there was an increase of 269 per cent During this period the estimated population of England and Wales has increased [illegible] per cent The ratio of insane to population has increased in the fifty three years by 98 8 per cent The proportion of insane to population now is 1 260 Of the total number of certified insane persons under care on Jan 1, 1912, 46 5 per cent were males and 53 5 per cent females These figures show an appreciably higher proportion of females than is found in the general population, in which there are forty eight males to fifty two females In regard to the causation of insanity, mental stress was more prominent in the case of females than males in the proportion of sixty five to thirty five On the other hand, alcoholism was twice as common a factor in males as females and syphilis six times as common

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug 16, 1912

The Crisis in Ophthalmology

The serious outlook for ophthalmologists in France was discussed at the recent general assembly of the Syndicat des oculistes français Dr Aubineau, of Brest, reviewed the many causes of the present crisis In the first place, the greater attention given to hygiene in all classes of society tends to decrease the number of cases of ocular disease not only by diminishing the chances of infection and contagion, but also by inclining the individual to seek medical aid for the slightest trouble of the eyes Cases of conjunctivitis, keratitis and even of iritis are therefore treated at the beginning, when they can be cared for by the family physician. This is fortunate from a broad point of view, but the result is a constant diminution of the number of cases for which the oculist is consulted. Moreover, the surgical side of ophthalmology, which formerly was an important source of revenue, is becoming more and more restricted, whereas in such specialties as otology and rhinology operations grow more frequent The increase in the number of oculists and ophthalmologists, by encouraging early attention to ophthalmologic troubles, makes surgical cases more rare Then too, ophthalmologic knowledge is becoming more general in the medical profession The new program of medical studies makes the ophthalmologic *stage* obligatory, which will make the general practitioner more competent and still further increase the natural tendency to eliminate the specialist Charlatanism and illegal practice of medicine likewise constitute important factors According to Dr Aubineau the most serious injury to oculists from illegal practice of medicine is caused by the pharmacist, who not only dispenses ophthalmologic remedies but also prescribes and sells glasses The new profession of pharmacist optician, springing up in many localities, is detrimental to oculists The most important cause of the crisis in the specialty is professional overcrowding, general as well as special There are few or no vacant posts, and the diminution of appointments leads young physicians to abandon the general practice of medicine for a specialty which appears more agreeable and more remunerative The fact that general practitioners themselves are subject to severe competition tends to make them crowd out the specialist The number of oculists is increasing so that ophthalmology is even more overcrowded than general medicine. This is a natural result of the present facilities for ophthalmologic studies Ophthalmologic services, with assistants, interns and externs are multiplied in the hospitals Moreover, the *facultés* and *écoles de plein exercise* are continually preparing future oculists

Some of these factors are due to social and scientific progress and therefore cannot be combated, whatever may be their consequences Accordingly, Dr Aubineau believes that professional overcrowding must be opposed by enlightening the public with regard to the actual situation of the physician in general and the specialist in particular

Tuberculosis as a Reportable Disease

A certain number of senators and deputies have recently formed a parliamentary group on tuberculosis Among other means of combating this terrible scourge, this parliamentary group demands that tuberculosis shall be made a reportable disease The Syndicat des medecins de la Seine protests against this obligation, declaring that 'reporting tuberculosis would tend to make patients reluctant to place their confidence in the physician, and that the rôle of police officers imposed on the physician would violate professional secrecy" The *syndicat* believes that to combat tuberculosis effectively the government should prevent the renting of insufficiently lighted and aired lodgings, should require the disinfection of lodgings, should strive to improve the general hygiene and the food of working people, and should take measures against alcoholism.

Reorganization of the Service of Military Hygiene

The technical section of the military service of hygiene will hereafter constitute a special establishment directly under the minister of war, and will comprise three services, which will permit the study of all the organic questions of the health department of the army It will, moreover, have at its command facilities which hitherto were lacking for making numerous researches in regard to military hygiene and epidemiology

Semicentennial of the First French Ovariotomy

It is now fifty years since the first ovariotomy in France was performed in Strasburg by Dr Koeberle, who is now living in retirement, at an advanced age Real courage was necessary at that period to undertake such an operation, which, although it had already been successfully performed in the hands of American, English and German surgeons, was still considered by French surgeons as criminal.

Personal

Dr Sabrazès, *agrégé* professor at the laboratory of the Faculté de médecine de Bordeaux, has been appointed professor of pathology and anatomy at the same school, in place of Dr Coyne, who has retired

Dr Bué, *agrégé* professor at the Faculté de médicine de Lille, has been appointed professor of obstetrics and pediatrics at the same school

Adrenal Insufficiency and Typhoid Fever

On July 22, Dr Emile Sergent physician of the hospitals of Paris, read a paper on the subject before the Academie de medecine Dr Sergent described in 1889, with Dr Léon Bernard, the now classical syndrome of adrenal insufficiency, he then undertook to prove that adrenal insufficiency may be observed in all infectious diseases and in all severe intoxications This theory is of great practical importance, involving the use of adrenal medication in such cases Adrenal insufficiency may be suspected in an infectious disease when agitation, excitement and fever give place abruptly to prostration, lower temperature, and arterial hypotension with the white adrenal line (a dermographic sign considered by Sergent as characteristic of adrenal insufficiency) and a tendency to collapse Habitual prostration and small pulse are signs of adrenal insufficiency in typhoid These signs attain their maximum in certain severe typhoids, simulating peritonitis or internal hemorrhage and disappear rapidly under adrenal opotherapy Certain complications of convalescence (prostration, anemia, psychasthenia) are due to slow adrenal insufficiency, from subacute inflammation of the adrenals. From these data, Sergent concludes that the systematic employment of epinephrin is justified in all cases of typhoid and that the extracts of the entire adrenal capsule are indicated for the severe complications due to acute adrenal insufficiency Except in those hypertoxic or hemorrhagic cases which defy all treatment, this method combined with ordinary treatment of typhoid gives the more favorable results

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug 16, 1912

Personal

Since Professor Matthes of Marburg has declined the appointment as successor of Professor von Lichtheim at Konigsberg, Professor Schittenhelm of Erlangen, one of the best known pupils of Professor Kraus of Berlin, has been selected.

Statistics of Illness in the German Navy

According to a statistical report prepared by the medical department of the imperial naval office on the imperial German marine there were 28,461 cases of sickness in a strength of about 50,000 men, or nearly 570 per thousand The fact that on the average each patient was under medical treatment for seventeen or eighteen days, indicates that in many cases the illness was severe and protracted. On the other hand, it is satisfactory to note that in spite of the absolute height of the morbidity, the death rate did not reach one per thousand of the established strength Unremitting efforts are being made to improve the insanitary conditions of the war vessels which are particularly unfavorable because of insufficient room Among these is to be reckoned the introduction of tanks for fresh water in the dressing rooms The apparatus for seltzer water, which have been of late introduced in increasing numbers on the battle ships, are finding constantly greater favor with the crew In connection with this the decided reduction in the use of alcoholic beverages is to be noted

A New Cancer Treatment

New methods of cancer therapy follow each other almost daily and particularly since the publication by Wassermann, scarcely a month passes that new methods of cure are not reported in Germany or elsewhere In the last few weeks a method has been announced by Dr Zeller, a practitioner in a small place in Würtemberg Zeller, following a previous recommendation by an English physician, employed silicic acid internally in the form of its sodium and potassium salts, as well as an organic silicate prepared by himself Further he treated the cancer patients—only surgical cases with external cancer—by brushing with a paste of arsenic, cinnabar and charcoal, according to the recommendation of a chief district physician, Dr Staudemeyer When the paste was brushed over an ulcerated breast cancer of the mammary gland, it was noted that the cancer tissue absorbed the chocolate colored paste, became separated from the healthy tissue and could be peeled out with the hand while healthy tissue remained practically unaffected Also the swelling of the glands receded distinctly Zeller has so far treated fifty seven cancer patients, of whom forty four are reported by him as cured, three are dead and ten are still under treatment On the basis of a demonstration which he made and at which Professor Czerny of Heidelberg was present, Obermedizinalrat Scheurlen expresses himself in a medical journal to the effect that good results from the treatment are indubitable Some of the patients had undergone repeated operations and had been declared to be suffering from an inoperable recurrence Under Zeller's treatment they present an excellent general condition and neither a return nor a swollen gland is to be found, though it remains to be seen whether or not they are permanently cured It would be premature as yet to draw final conclusions regarding the method, or for private practitioners to try this new method except in completely hopeless cases

Death-Rate in the German Army

According to the latest official information the annual death rate per thousand men in the German army is two, while in the French, Italian and Austro Hungarian it is four, in the army of the United States six and in that of Great Britain eight These satisfactory figures are the more notable because for a long time there have not been enough surgeons in the German army According to a late report 100 places for surgeons are vacant The favorable mortality figures must be regarded as an evidence of the good hygienic condition of the entire people as well as the excellent sanitary discipline in the army Indeed, for many years the German sanitary authorities have taken care that the condition of the garrisons and the care of the soldiers and the arrangements of hospitals shall constantly conform in the highest degree to the principles of scientific practice

Meeting of the German Anthropologists

At the first session of the annual meeting of the German Anthropologic Society early in August, at Weimar, the president, Professor von Luschan, director of the ethnologic museum in Berlin, delivered an opening address which contained a number of interesting ethnologic statements He established the fact that paleolithic man already presented a number of different types and that European man is a mixture of several races To the dark skinned Africans whom many regard as savages we owe the technic which characterized the iron age Bronze took its origin in Egypt The question whether we are intellectually advancing or retrograding is of great importance and whether in the mass of the population the capable or the incapable are increasing in numbers The lowering of the birth rate and the evil of the two child system is no longer, as formerly confined to France but is becoming manifest in most civilized countries It is found not only in the upper ten thousand but has spread also to the rural population The remedy can be found only by careful investigation and here an important task awaits social anthropology the newest branch of anthropologic science About $250 000 (1,000 000 marks) is necessary for such a general investigation it is to be hoped that this sum will be appropriated by the imperial government The problem of miscegenation is an important question for social anthropology The mixing of nearly related groups is not unfavorable for posterity Von Luschan regards the few who express themselves in favor of the culture of a pure blond dolichocephalic type as fanatics The population of countries which stand on a high plane is composed of many types It is well known that some colored hybrids are of high intellectual character Luschan is of the opinion that the Indogermanic, African and East Asiatic groups of mankind formed about 100,000 years ago a single distinct species and that all can mix with each other without disadvantage. He freely admits however that other scientists are of different opinions Statistical inquiries regarding this question will be of great value particularly with reference to the intellectual and physical peculiarities of half breeds

BUDAPEST LETTER

(From Our Occasional Correspondent)

Budapest Aug 13, 1912

Trachoma in a Hungarian County

In the county of Vas, trachoma has prevailed this year to such a degree that the medical board of the county had to ask the minister of public health to appoint two special physicians solely to treat trachoma Whereas there were in the last year 741 trachoma patients in the first half of this year they numbered 850 It was discovered recently that trachoma is introduced into the villages chiefly by discharged soldiers the army being so much infected that as mentioned in a previous letter (May 4 1912 p 1388), regiments had to be formed from trachomatous soldiers and officers for the sake of isolation Even this measure was of little avail because the soldiers acquire trachoma voluntarily, running the terrible risk of losing their sight in the hope that they will be discharged from service because even after the formation of trachomatous companies and regiments soldiers with severe or incurable cases have to be discharged

Cholera in Hungary

At this season of the year, supposed cholera cases crop out in every corner of the country Most of these cases prove to be only severe gastro enteritis diarrhea etc Should a real cholera epidemic break out, it will not find us unprepared, because every precaution is taken to prevent the spread of an epidemic As cholera is mostly brought into Hungary from Roumania, in ships coming up from Galatz on the Danube to Hungary, the ship surgeons of the Danube vessels have been instructed to examine every passenger before he comes on board, and also to examine goods carried on the ships, drinking water, etc In the ports the passengers are repeatedly examined by the port medical officers From navigable rivers samples of water are to be sent once every week to the public health ministry, where the water is carefully examined for cholera vibrios

The Prevention of Senility

Professor Metchnikoff director of the Paris Pasteur Institute addresses a letter to a leading Hungarian daily paper (a freemasons' paper, chiefly edited by medical men) in which he publishes the results of his latest investigations His scientific discoveries he says have been so exaggerated in lay papers that he has resolved henceforth to write direct to the public After mentioning his early theory that the length of life among animals varies inversely with the length of the large intestine, and his later theory that senility is the consequence of the effects of toxins (chiefly phenols) produced by the intestinal bacteria Metchnikoff refers to experiments in which he actually succeeded in producing in apes senile degeneration by giving them small doses of parakresol (a derivative of phenol) for some time

These were the fundamental investigations which led to the solution of the question as to how the action of the intestinal bacteria might be checked or lessened The lactic acid bacillus has proved to be the best for this purpose An obstacle to the work of the lactic acid bacilli has been their need of sugar which does not reach the rectum in a usable form Dr Metchnikoff and Dr Wollmann his pupil have overcome this by cultivating bacteria which produce sugar from starch It is now possible to supply a diet capable of supporting the bacillus which limits the action of the intestinal flora

Of course concludes Metchnikoff the struggle against senility is not at all finished Whether these discoveries will actually tend toward the lengthening of human life is yet a question of the future But it cannot be denied that a beginning has been made and we have reason to hope that from these investigations mankind may derive practical benefit

Marriages

Philip Graham Reedy, M D, McLaughlin, S Dak, to Miss Rachel Nora O'Neill, of O'Neill, S Dak, at Fort Yates, N Dak, August 21

Hugo Bruno Charles Riemer, U S P H Service, Boston, to Miss Lucille Elizabeth Warner, of Ellensburg, Wash, September 2

F Selden Stewart, M D, Buffalo, N Y, to Miss M Emma Veazy Newnons, of Harrington, Del, at Summit Bridge, Del, August 7

Maurice E Broadas Owens, M.D, Long Lake, Wash, to Maysville J Freeman, of Baltimore, at Spokane, September 1

Louis E Saunders, M D, to Miss Edna E Whitmore, both of Stewartsville, Mo, at Leavenworth, Kan, August 10

Mathew Joseph Hoey, M D, Las Cascadas, C Z, to Miss Maybelle Jane Fowler, at Colon, Panama, August 8

William L Davis, M D, Elmira, Mo, to Miss Sybil Gertrude Wood, of Sedalia, Mo, at Elmira, July 28

Alvis E Greer, M D, Houston, Tex., to Miss Claire Eleanor Gadde, of Odanah, Wis, at Chicago, June 27

John Goldsborough Swails, M.D, Grafton, Neb, to Miss Hazel Folks, of Maysville, Mo, August 10

Luther Sheldon, Jr., M C, U S Navy, to Miss Helen DuBose, of Washington, D C, August 14

William H Falls, M.D, to Miss Cordelia W Coffey, both of Cincinnati, at Cleveland, August 10

John J Mulheron, M D, Greenfield, Mich, to Mrs Mary J Jones, of Albion, Mich, August 21

Sterling C Basney, M.D, Mont Clare, Pa, to Miss G R. Parmentier, of Philadelphia, May 20

Lewis F Ladd, M.D, Martin, Mich, to Miss Blanch Montieth, of Allegan, Mich, August 15

Turner Benton Smith, M.D, Clifton, Ariz, to Miss Rebecca Lynch, of Los Angeles, August 13

Deaths

Paul Emile Archinard, M D Tulane University, New Orleans, 1882, professor of diseases of the nervous system in his alma mater, bacteriologist of the State Board of Health, city bacteriologist of New Orleans, one of the founders of the New Orleans Polyclinic, a member of the American Medical Association and for two terms president of the Louisiana State Medical Society, author of standard text books on microscopy and bacteriology, a member of the Medical Reserve Corps, U S Army, died at his home in New Orleans, August 23, from pulmonary disease, aged 53 Dr Archinard was a good practitioner of medicine and eminent as a neurologist and bacteriologist, he was greatly esteemed and beloved by his colleagues in the medical profession and his untimely death is universally deplored

Rudolph Wirth, M.D Pennsylvania Medical College, Gettysburg Pa, 1859, one of the founders of the Columbus, Ohio, Academy of Medicine, for many years a member of the faculty of Columbus Medical College in the department of nervous and mental diseases, surgeon of the First Ohio Volunteer Cavalry throughout the Civil War, for one term physician to the State Institution for the Deaf, died at his home, June 8 from senile debility, aged 83

Charles H. Rose, M.D Eclectic Medical College of Philadelphia, 1855, a member of the Medical and Chirurgical Faculty of Maryland president of the Talbot County Medical Association, for two terms a judge of the Orphans' Court, a member of the Maryland House of Delegates in 1808 and 1910, a resident of Cordova for fifty six years, died at the home of his daughter in Centreville, Md, August 23, aged 78

Sarah E Furnas Wells, M.D New York Medical College and Hospital for Women, New York City, 1869, formerly a member of the faculty of her alma mater and president of the Woman's Medical College and Hospital, San Francisco, who had lived in seculsion for several years, died at her home in St Louis, August 21 from the effects of burns accidentally received aged 78

Andrew J Hobach, who attended, but was not graduated from the Philadelphia College of Medicine and Surgery, an honorary member of the Medical Society of Virginia, surgeon in the Confederate service throughout the Civil War, a practitioner for fifty five years, died at his home in Roanoke, August 19, from cerebral hemorrhage, aged 80

Walter Ross Foster, M D Jefferson Medical College, 1886, a member of the American Medical Association, physician to St Paul's Orphan Asylum and the Allegheny County Home, Crafton, Pa, surgeon to the Pittsburgh Railway Company and the Panhandle System, died in the West Penn Hospital, Pittsburgh, August 23, aged 48

John M Wells, M.D University of Louisville, Ky, 1876, a member of the Kentucky State Medical Association and secretary of the Nicholas County Medical Society, formerly health officer of Nicholas County and secretary of the county board of health, died at his home near Ellisville, August 15, from nephritis, aged 58

Benjamin Michael Alford, M.D University of Nashville, Tenn, 1856; surgeon in the Confederate service during the Civil War, for twenty years surgeon of the Southern Pacific and Santa Fe systems at Tulare, Cal, died at his home in Alameda, August 15, from cerebral hemorrhage, aged 79

Theodore A Worrall, M D University of Pennsylvania, Philadelphia, 1870, a member of the Medical and Chirurgical Faculty of Maryland, at one time health officer of Cecil County, a veteran of the Civil War, died at his home in Northeast, August 14, from tuberculosis, aged 68

Henry Stuart Nolan, M.D Tufts College Medical School, Boston, 1906, of West Somerville, a member of the Massachusetts Medical Society, died in the Deaconess Hospital, Brookline, August 18, from intestinal disease, five months after an operation for appendicitis, aged 29

Henry Strong Denison, M.D Johns Hopkins University, Baltimore, 1908, a member of the American Medical Association, died at his home in Denver, August 24, from the effects of bichlorid of mercury accidentally self administered, aged [illegible]

Henry Sanford Green, M D Miami Medical College, cinnati, 1869, formerly a member of the American Med Association, a member of the Ohio State Medical Assoc tion, died at his home in Cardington, August 18, aged 70

*James Polk Sangston, M.D University of Wooster, Cleve*land, 1868, a member of the Medical Society of the State of Pennsylvania, died at his home in McClellandtown, August 17, from angina pectoris, aged 67

Robert Edward Martin, M D Chicago Homeopathic Medical College 1886, a physician and organist of Milwaukee, died at the home of his mother in Milwaukee, August 21, from heart disease, aged 47

William Horace Johnson, M D College of Physicians and Surgeons, Baltimore, 1870, a member of the Medical Society of the State of Pennsylvania, died at his home in Dudley, August 17, aged 70

Michael L Lyons, M.D Tulane University, New Orleans, 1871, of Crowley, La, a Confederate veteran, died in the Touro Infirmary, New Orleans, August 19, after a surgical operation, aged 78

Richard D Wilson, M D Tulane University, New Orleans, 1898, of Phoenix, Ariz, aged 42, was drowned August 18 while swimming across the Arizona Canal, to recover a bird he had shot

John Walker Collver, M D Rush Medical College, 1864, for more than half a century a practitioner of Welland Port, Ont, died at his home, August 20, from senile debility, aged 82

John W Burchard, M.D University of Buffalo, N Y, 1884, a practitioner for more than thirty five years, died at his home in Bradley, S Dak, August 15, aged 65

Louis Frank Lattan, M D Rush Medical College, 1891, for twenty years a practitioner of Chicago, died at his home in Detroit, August 15, from pneumonia, aged 45

J L Miles (years of practice, Texas, 1907), one of the oldest practitioners of the state, died at his home in Swan August 17, from senile debility, aged 86

R. A Cook, M.D Atlanta (Ga) Medical College, 1877, president of the Board of Education of Social Circle, Ga, died at his home, August 16, aged 58

Dennis B Nisbit, M.D Medical College of Georgia, Augusta, 1896, of Eatonton, Ga, died at the home of his brother in that city, August 15, aged 57

David P Shattuck, M D Hahnemann Medical College, Chicago, 1883, died at his home in Independence, Iowa, August 20, from nephritis, aged 66

William Armstrong Davison, M D Washington University, St. Louis, 1873, died recently at his home in Bridgeport, Cal, aged 62

Lettie C Mansur, M D Denver College of Physicians and Surgeons, 1896, died at her home in Santa Ana, Cal, in July

J Newton Rogers, M.D University of Michigan, Ann Arbor, 1818, died at his home in Marion, Kan, August 19

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE HABITINA FRAUD

A Morphin Mixture Sold as a Cure for Morphin Addiction

Habitina, sold by the Delta Chemical Company of St Louis as a cure for the morphin habit, was exposed in The Journal, March 12, 1910 It was one of those vicious mixtures containing large amounts of morphin, which are sold to drug addicts but which, instead of curing, substitute slavery to a high priced, fancy named, morphin mixture for that to the simple opiate itself The Delta Chemical Company did a flourishing business and when investigated by the federal authorities it was estimated that the gross receipts of the company must have exceeded half a million dollars in the six years of its existence The Journal of May 11, 1912, chronicled the fact that R C Prewitt, M.D, and Ryland C Bruce, who constituted the Delta Chemical Company, were each fined $[illegible],000 and sentenced to five years' imprisonment at hard labor in the United States Penitentiary, for the villainous business in which they had been engaged. An appeal was taken—of course—and Bruce and Prewitt were released on bonds of $7 000 each The St Louis papers of July 12, 1912, stated that Prewitt had obtained legal permission to change his name to Gregg

At the trial it was brought out that this nostrum was made for the Delta Chemical Company by the Combs Chemical Company of St Louis, of which Delta E Combs is president The federal inspectors reported on Gregg (Prewitt) as follows He is a graduate of the Barnes Medical College St Louis, and for a year before graduation had practiced medicine in Arkansas In 1900 he was located in Mississippi County, Ark. then went to Forest City of the same state and being unable to obtain a practice moved once more this time to Little Rock, Ark There he engaged in the surgical instrument business, on borrowed money, and failed in about a year, he then moved to St Louis in the fall of 1904 and became a traveling salesman, left that position and went to Cincinnati, O, where he traveled for the Merrill Chemical Co, returning to St Louis about the middle of 1905 He then entered the employ of a branch of the James Sanitarium Memphis Tenn, which was at that time doing a mail order morphin cure' business Later the James Sanitarium discontinued its mail order work and it was then found in the hands of Bruce and Prewitt who called the nostrum Morphina Cura" When the Food and Drugs Act went into effect they changed the name of their villainous nostrum to Habitina'

Bruce and Gregg (Prewitt) had maintained up to the time of the trial that they did not send samples of Habitina to any person until they had first received a list of answers to questions regarding the physical condition nature of addiction etc of the prospective patient This claim was false and was proved to be so by a member of The Journal staff, who appeared as one of the witnesses for the government In the course of preparing our first article regarding this fraud the following letter was sent to the Delta Chemical Company

> Gentlemen Please send me a sample of your morphin cure Habitina also directions for use

This letter which certainly gave no information about its writer, brought a reply from the Delta Chemical Company with a sample of Habitina, containing enough morphin to kill six or seven people A carbon copy of this letter together with the various letters received from the Delta Chemical Company including the envelopes in which these letters came also the sample that was sent and the package in which it came, were all turned over to the government by The Journal as exhibits in the case They proved of material value to the prosecution.

The formula of Habitina, according to Delta E. Combs, who made the stuff, is

Morphin sulphate	16.0	gr
Heroin	8.0	gr
Caffein	2.5	gr
Spartein	0.5	gr
Pilocarpin	0.5	gr
Hyoscin etc	0.05	gr
Carbolic acid	0.5	gr
Alcohol	1.0	gr
Water to make	1.0	oz.

The testimony of the victims of this preparation was what might be expected In the report of the post office inspectors which is published in a government bulletin the names and addresses of the various victims are given in full. They will be referred to here, only by initial

Mr H I C *Missouri testified that he had been addicted to the* Habitina habit for more than six years that he had purchased Habitina to cure himself of the morphin habit that at first he took one bottle a week, gradually increasing until during the last year of his addiction he took one $2 bottle daily He further testified that the stuff injured his eyes and made him a maniac and mentally irresponsible that he used his utmost endeavor to break himself of the habit but could not do so that when under the influence of Habitina he would give away all he possessed B for his addiction he owned his own home and earned $20 a week as a mechanic He is now penniless and without work

Mrs M P Pennsylvania testified that she purchased Habitina to cure herself of the drug habit she found it impossible to reduce the dose and increased from a few drops to about half a bottle a day It destroyed her reason and made her absolutely blind. Later she was treated in a hospital and is no longer a drug addict

Mr H W D Iowa. testified that he had been purchasing Habitina by mail for the past five years. He had increased the dose until at the time of the trial he was using half a bottle daily He stated that he was unable to quit or reduce the dose and was a slave to the Habitina habit

Mr W J H Missouri testified that he purchased Habitina to cure himself of the morphin habit. He increased from a bottle a week to a bottle a day and at last ordered six bottles at a time which the company always sent without question He finally had to go to a reputable sanitarium to be cured He submitted $283 in checks that he had sent to the Habitina Company and stated that he had purchased a large additional amount at drug stores

Mrs A S J South Carolina testified that she was 5[illegible] years of age and had taken $354 worth of Habitina trying to cure herself of the morphin habit She said that Habitina destroyed her reason and she had to resort to a sanitarium to free herself from its thralls

Mrs G M S Missouri, 26 years of age testified that she had spent at least $[illegible] 300 on Habitina in the past five years trying to cure herself of the morphin habit For two years past she had been taking $2 worth daily She testified that she was still a slave to Habitina and had sacrificed position family clothes and had even gone without shoes in order to obtain this drug She is a young woman of good family Her father was for many years connected with the Department of Justice and her brother in law holds a high *position in the Federal service*

Other individuals suffering from the Habitina habit were present at the trial but were not called to testify as it was believed that sufficient evidence on the point had been given The Habitina concern introduced in its defense the testimony of three physicians, all of St Louis Dr Mark Ray Hughes testified that he believed Habitina would effect a cure if taken as directed It was shown on cross examination that he had only treated one habitue by placing the drug in the hands of the patient himself This was nine years ago and he had never seen the patient since to know whether or not he was cured Dr Andrew B Nichols testified that he believed Habitina would cure if taken as directed but he stated that he had never known of an addict curing himself Dr Charles H Hughes while called by the defense gave testimony that was helpful to the government's case He testified that if a patient could take Habitina as directed he might be cured but that the treatment was neither feasible nor safe

When Dr Gregg (Prewitt) was called to the stand he was made to admit the various details that have already been given of his lack of success as a reputable physician It was further brought out that while connected with the Habitina Company and up to the time of his arrest he was also in the employ of the Glyco Thymoline [illegible] In summing up the case the post office inspector [illegible] concluded as follows

> The conviction obtained in the most pernicious and [illegible] on a credulous public, who

large sums of money, ranging from a few dollars to over $2,000 each, but were robbed of health of body and mind, some were rendered blind and some were made maniacs—how many died under the 'treatment' will never be known—but, taking their own testimonials as a source of information, four out of eight have died drug addicts, and out of the thousands of persons they have treated but one witness could be produced by the defendants to testify in behalf of this drug having any remedial properties whatever These defendants deliberately fostered the most dreadful forms of drug slavery for their personal gain They made no effort to cure the patient for the blood money thus obtained They produced no evidence which would traverse the contention of the Government that the whole purpose of the defendants was to substitute for the slavery to the drug purchased by the habitué from the 'corner pharmacist' under the restrictions of state law, the slavery to the same and worse drugs purchased under a disguised name at many times a fair commercial price from the Delta Chemical Co"

Correspondence

The Insanity Problem

To the Editor —Your editorial on this subject (August 17, p 545) is most timely Insanity, criminality and pauperism are on the increase in the United States, and as a large proportion of the insane, the criminal and the pauper elements of our population are aliens, there is nothing astonishing about that fact For many years this country has been the dumping ground for the riffraff and scum of Europe, and now we are reaping what we sowed In our large American cities vice and crime are rampant, murder, arson, dynamiting, burglary, hold ups, blackmailing, larceny and general dishonesty and graft are the order of the day New York stands at the head of the list, with one murder daily during July and a startling exposé through the Rosenthal murder of moral rottenness in official life

The expense of looking after the criminals of this country is enormous A member of the Court of Pardons of New Jersey has stated recently, in a pamphlet on penology, that it amounts to $1,000 000,000 annually $114,000 for every hour of the day and night How much good could be accomplished with so much money devoted to help the really worthy poor, instead of being wasted on a lot of worthless wretches, most of whom are either foreigners or only one remove from foreigners It would be interesting to know how much it costs every year to support the inmates of our hospitals, orphan asylums, insane asylums, homes for the feeble minded, etc The amount runs into the millions, and here again the "undesirable alien" and his progeny are in great measure responsible for this gigantic expenditure

Why should this country be called on to support the human refuse of every country of Europe? This is a question which, perhaps, some Solomon in our national legislature might be able to answer, if puttering over the tariff or devising means to increase the "pension grab" did not overtax his mental capacity

Is the medical examination of immigrants anything more than a farce? Would it be possible for the medical examiners at our ports of entry to diagnose incipient or latent disease in the time at their disposal, even if they had *x* ray eyes and every man were a veritable medical Sherlock Holmes? The medical profession through its representative organizations should protest in no uncertain tones against making this country the dump heap for the human refuse of Europe and breeding ground for mental and physical degenerates and criminals For many years there has been far more attention paid to the breeding of hogs in this country than to the breeding of human beings Breeders have sense enough to give their cattle the benefit of the law of heredity but our national legislators probably think—if they think at all—that they can "make a silk purse from a sow s ear," or breed a thoroughbred horse from a jackass

I hope that your editorial will have the effect of waking up to a proper sense of his responsibility the medical man of this country G H Balleray, Paterson, N J

Queries and Minor Notes

Anonymous Communications will not be noticed Every letter must contain the writer s name and address, but these will be omitted on request

AMBARD S FORMULA

To the Editor —In an abstract in the Current Medical Literature department of The Journal (July 20 p 229), Ambard s formula for finding the urea index in kidney disease is given The language seems somewhat ambiguous to me and I do not understand the method of procedure of the test The formula given is

$$\frac{\mathrm{Ur}}{\sqrt{\mathrm{D} \times \frac{70}{\mathrm{P}} \times \sqrt{\frac{\mathrm{C}}{25}}}} = \mathrm{K}$$

It appears to me that it should be P/70 instead of 70/P since P stands for the unknown weight of the person and 70 is given as the standard weight of man as 70 kg Then in the typical case given,

$$\frac{0\;46}{\sqrt{24 \times \frac{70}{72} \times \sqrt{\frac{22\;5}{25}}}} = 0\;004$$

according to my calculation there is a mistake in the figuring the square root of 4 4 which is 2 1 having been overlooked 0 426÷4 4 will give the figure 0 004 but after extraction of the square root of 4 4 the answer is incorrect Will you kindly explain in simple language the entire method of procedure how to make the test with the patient s blood and urine and how to calculate the index from the formula A A Himowich M D New York City

Answer —1 The technic of this test is as follows The bladder is emptied completely either by spontaneous micturition or in a more accurate way by the catheter When the bladder is completely empty the exact time is carefully noted Ten minutes later two wet cups are applied to the patient so as to collect about 40 gm of blood At the end of about a half hour the urine which has collected in the bladder is accurately measured and the moment when the last drop flows is exactly noted Thus are accurately determined (1) the duration of the experiment, and (2) the quantity of urine secreted during this time

The percentage of urea in blood and in the urine is then determined The technic followed by Carrion in determining the amount of urea in the blood is as follows Ten c c of serum, or a mixture of serum and corpuscles expressed from a clot, are placed in a conical glass and little by little an exactly equal quantity of a 20 per cent solution of trichloracetic acid is added and thoroughly mixed by stirring with a test tube [or thick glass rod] This mixture is then filtered through a single unplaited filter placed in a rapid filtering funnel Ten c c of the filtrate are placed in an Yvon mercury ureometer (as modified by Desgrez—an instrument of a form not used in America) and 3 or 4 c c sodium hydroxid solution, diluted with twice the volume of water, are added to neutralize the acid Any gas which may have been evolved is allowed to escape and then solution of sodium hypobromite is added and the urea determined by the amount of nitrogen evolved By calculation from the figures thus obtained the amount of urine which would be secreted in twenty four hours and the entire quantity of urea are determined These figures together with the weight of the body in kilograms are substituted for the corresponding letters in the equation

$$\frac{\mathrm{Ur}}{\sqrt{\mathrm{D} \times \frac{70}{\mathrm{P}} \times \sqrt{\frac{\mathrm{C}}{25}}}} = \mathrm{K}.$$

and the equation solved to determine the coefficient K In the equation Ur stands for the proportion of urea in the blood, D for the total urea for twenty four hours in grams, P for the body weight of the patient in kilograms, and C for proportion of urea in the urine

With regard to our correspondent's question as to the correctness of the fraction referring to the body weight, we think a little reflection will show that the formula is correct The introduction of the body weight serves to indicate the quantity of urea excreted per unit of body weight It is evident, therefore, that to obtain this, D should be divided by the weight or, as expressed in this formula, by the specific body weight over the average That is to say, the amount of urea secreted per unit of body weight would be by $\mathrm{D} - \frac{\mathrm{P}}{70}$ which is equivalent to the expression given in the equation $\mathrm{D} \times \frac{70}{\mathrm{P}}$

With regard to our correspondent's difficulty in the calculation we think it may arise from a typographic error by which the radical sign is not properly extended to include both the numerator and denominator of the fractions Thus the last term in the general denominator in the equation should read $\sqrt{\frac{22\ 5}{25}}$ The equation when solved gives according to our calculation the figure 0 0906 which is slightly different from the figure 0 094 printed in the *Presse Médicale* It is a singular coincidence that by neglecting to extract the root of the denominators in the equation as written by our correspondent a figure almost exactly the same is obtained

DETERMINATION OF SUGAR IN THE URINE

To the Editor —Kindly explain the details of a simple accurate and quick office method of quantitative estimation of sugar in the urine using the Haines and Fehling test solutions also explain the calculation for obtaining the percentage of sugar in the urine

F Y

HAINES' SOLUTION

ANSWER.—Ten c.c. of Haines' quantitative solution are measured into a 100 c.c Erlenmeyer flask, which is closed with a rubber stopper with two openings Through one of these is passed a tube bent at a right angle and with the outer end drawn out to a small caliber Through the other opening is passed the tip of the buret To the solution in the flask are added about 30 c.c. of ammonia solution (10 per cent) The mixture is heated to boiling and kept gently bubbling during the operation. The urine, as a rule, should be diluted to from five to ten times its volume and the degree of dilution should be accurately noted. It is placed in a buret the tip of which passes through one of the openings in the stopper closing the flask When the mixture in the flask reaches the boiling point the urine is run in somewhat cautiously, the boiling being repeated between the separate additions until the color of the solution has entirely disappeared. The first titration must be considered as a preliminary one, and a second should be made with the same quantity of test solution In titrating the second time nearly the whole quantity of urine used in the first trial should be added *at once and then subsequent additions made* drop by drop until the color of the solution has entirely disappeared. In this operation it is important that the flask should remain filled with the vapors of ammonia If air is allowed to enter the flask the reduced copper will be reoxidized and the accuracy of the titration will be defeated.

In determining the percentage of sugar it should be remembered that the greater the quantity of urine needed to secure the reduction of the copper in the amount of test solution employed, the smaller is the percentage of sugar in the liquid under examination The Haines' solution is so prepared that if 10 c c. is reduced by 1 c c of urine the percentage of sugar is 1 per cent Consequently this percentage of sugar should be divided by the number of cubic centimeters of urine which are required to effect the reduction Thus, if 1 c c of urine is required for the reduction, the percentage is 1 If 5 c c are required the percentage is one fifth (0 2)

FEHLING'S SOLUTION

As the best results are obtained if from 5 to 10 c c of urine are used in one titration, it is often necessary to dilute the urine to this end, in the determination of this point the specific gravity may serve as a guide As a general rule, urines of a specific gravity of 1 030 should be diluted five times, and if the density is still higher ten times Albumin, if present, must first be removed by boiling

Ten c c of Fehling's solution diluted with 40 c c of water are placed in a porcelain dish and boiled While boiling the diluted urine is added from a buret, 0 5 c c. at a time when as a rule, the precipitated red cuprous oxid will settle, so that the white sides of the dish may be seen through the blue field As the end point is reached every trace of blue has disappeared and the liquid has a faint yellowish tinge owing to beginning caramelization of the excess of sugar by the caustic alkali

If any doubt should arise whether the end point has been reached tiny droplets of the mixture should be placed on ferrocyanid paper (prepared by soaking filter paper in a moderately dilute solution of potassium ferrocyanid) If unreduced copper is still present a brown color results The result is regarded as positive only if the brown develops at once If it occurs only after several seconds the final point has been reached or passed

Prolonged boiling always brings some copper into solution again. It is hence advisable to make two examinations always, the one approximate only, and the second as the final one The calculation is then made according to the following equation y 0 05 100 x, and $x=5/y$ in which x equals the percentage of sugar and y the number of cubic centimeters of the liquid employed. In case the urine has been diluted the results should be multiplied by 5 or 10 according to the degree of dilution in order to determine the percentage of sugar in the original urine

PELLAGRA

To the Editor —Is there any evidence that pellagra is either infectious or contagious? If so where can I get it?

E D SHEPHERD Mangum Tex

ANSWER —There is no evidence that pellagra is a contagious disease No case has been reported to the best of our knowledge in which the disease has been conveyed from one person to another Some theorists have supposed that it is an infection, due to the action of some microorganism such as a protozoon No evidence, so far as we know has been presented to incriminate any particular microorganism The general belief seems to be that it is due to the use of maize and many authors believe that the poison is the result of the action of microorganisms on the maize but not on the patient A discussion of the theories regarding pellagra and the evidence for them can be found in Niles' work on 'Pellagra '

A MISPLACED CREDIT FOR A GOOD ARTICLE

To the Editor —The terse and very sensible quotation on "The Physician as a Business Man" which appears in THE JOURNAL (August 24 p 620) should be credited not to the *Delaware State Medical Journal* but to Dr William Brady whose editorial in the *New York State Medical Journal* the Delaware journal republished in full giving due credit to the source The editorial in question is so splendid from beginning to end that we desire to give Dr Brady the credit he deserves

A ROBIN
Editor *Delaware State Journal* Wilmington

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST GRADUATE WORK CONTRACT PRACTICE LEGISLATION MEDICAL DEFENSE AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

NEWSPAPER EDITORS ON HYGIENE

Reference has previously been made to the peculiar features of the present popular crusade against common drinking cups[1] Although not inspired or directed by any individual or organization, the movement for the abolition of common drinking cups in public places has in the last two years swept across the entire country Almost without exception the passage of laws forbidding common drinking cups on trains and in public buildings has been endorsed by the newspapers Occasionally some reactionary editor has regarded the subject as a fit one for ridicule or has denounced the awful tendency of the times to interfere with individual liberty An excellent example of this frame of mind is found in a recent editorial in the Columbus (Ohio) *Journal* Under the title of "The Microbe Fear," the editor says "It is against the law to have a common drinking cup in a railroad train and so a fellow has to travel a long way often without even a drink of water This is pretty fine haired hygiene and the country is getting too much of it "

Evidently the editor of the *Journal* fears that there is danger of the people of his state becoming too clean Perhaps he would change his views if he could read an editorial in the Norfolk (Va) *Pilot*, under the title of "Di [illegible] in Public Cups" The editor of the *Pilot* does not feel that cleanliness has yet reached the danger mark He quotes a tourist from New York describing a scene on a Southern railroad train

"To my surprise I saw one big black greasy fellow hold back two white women while he took his drink of water from the same cup and from the same water cooler as the white people were expected to take theirs from " The editor continues "The common drinking cup in public places is a source of great danger to the community not only becau negroes are peculiarly liable to spread disease by infection, but also because the germs do not draw any color line and are apt to be transmitted from one unhealthy white to another This is not a race question but a matter of scientific prevention of contagion This is not a question of sentiment It is simply a wise precaution of modern sanitary science Facts prove that disease is propagated by this custom Law should make such propagation impossible"

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[1] The Common Drinking Cup THE JOURNAL A M A [illegible] 1911 p 811

A recent editorial in the Zanesville (Ohio) *Signal*, might also be read with profit by the editor of the Columbus *Journal*, as it might help to calm his fears lest we are becoming too dangerously clean a nation. The *Signal* says "Microscopic examination of twenty two common drinking cups taken from public places such as hotels, stores, public schools and public wells, shows that disease producing bacteria were present on the various cups examined." The bacilli found are enumerated as diphtheria present in two cups taken from schoolhouses, pus producing bacilli found on seventeen cups, pneumonia bacilli on three In the light of this summary the editor's comments appear quite conservative It seems rational, in the light of an investigation of this character, to forbid the use of the common drinking cup in all public places, whether on the streets, on railroad cars, in hotels, libraries, or any other place of a public character where the multitude gathers In view of the general sentiment in favor of increased cleanliness, public as well as personal, the only alternative for those who object to such reforms would seem to be the organization of a National League for Freedom to be Dirty

Evidently, to paraphrase Sterne's famous remark, "they do those things better in Kentucky" The Louisville *Courier-Journal*, under the title of "The Public Horse-Trough," after stating that the common drinking cup for human beings has been forbidden by the state legislature, quotes a New York veterinary surgeon as saying that the public horse trough is one of the most pernicious sources of disease for horses The *Courier-Journal* continues

> 'There has been no agitation of this question in this particular part of the country, but when one comes to think about it the advice is sensible Horses have their infectious diseases the same as human beings and some of these diseases are much to be dreaded by those who have any considerable amount of their capital wrapped up in horse flesh A drinking trough where hundreds of horses are watered every day, and where little regard is paid to cleanliness, would seem to be a most dangerous source for the distribution of disease germs"

If this suggestion of the *Courier-Journal* should be followed out and public drinking troughs for horses abolished, it may be necessary for the conservative horses of Kentucky to leave the state and migrate to Columbus, in a body, in order that they may establish congenial relations with the editor of the Columbus *Journal*

Finally the Columbia (S C) *State Journal*, under the title of The Medical Trust" discusses the charge made by the united opposition to national and state health legislation, of the existence of a medical trust" After pointing out that the proposed national department of health would have for its object the prevention of disease and would therefore diminish instead of increasing the revenues of the medical profession, the editor says

> Cordial advocacy of the project by the medical profession, instead of being cause of suspicion, is rather cause for admiration of that spirit of unselfishness which has always distinguished the physician This health department plan, in fact is merely one concrete feature of a comprehensive campaign of health conservation, to which the profession as a whole is heartily committed in disregard of the unfavorable financial reaction on its members which these endeavors must produce When opponents of the national department of health raise the cry medical trust against it, the public will bear in mind that the ethical physicians supporting the project have not proposed any gigantic scheme based on any particular school of medicine, but have urged merely the gain which could be effected in efficiency and economy, through coordination of cognate governmental agencies for social reform and uplift, intended to bring each individual into physical harmony, as nearly as may be, with his environment and to inaugurate a comprehensive system of health conservation through disease prevention."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Illinois Coliseum Annex Chicago September 24 26 Sec Dr James A Egan Springfield

Iowa *Capitol Bldg Des Moines, September 11 13 Sec Dr Guilford H Sumner, State House*

Massachusetts State House Boston September 10-12 Sec Dr Edwin B Harvey *Room 159 State House*

New York September 17 20 Chief of Examinations Division Mr Harlan H. Horner Department of Education Albany

Connecticut July Report

Dr Charles A. Tuttle, secretary of the Connecticut State Medical Examining Board, reports the written examination held at New Haven, July 9 10, 1912 The number of subjects examined in was 7, total number of questions asked, 70, percentage required to pass, 75 The total number of candidates examined was 39, of whom 32 passed and 7 failed The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Yale Medical School	(1910) (1912)	75 5, 80 6 77 8 81 1 81 8 81 8 83 1 83 8 84, 84 8
Georgetown University	(1911)	75 5 75 7
Maryland Medical College	(1912)	75 75
Baltimore Medical College	(1912)	79 9
Johns Hopkins University	(1902) (1909) (1912)	93 79 9 90
University of Maryland	(1910) (1912)	75 8 82 3
Harvard University Medical School	(1912)	84 9
Tufts College Medical School	(1912)	78 8
St Louis University	(1912)	80
Columbia University College of Phys. and Surgs	(1895)	75 5
Cornell University Medical College	(1910)	82 1
Medico Chirurgical College of Philadelphia	(1912)	81 8
University of Pennsylvania	(1910) (1912)	80 5 80 2
Woman s Medical College of Pennsylvania	(1912)	76 4
University of Vermont	(1911)	81 7
McGill University Montreal Quebec	(1903) (1907)	83 7 87 9
FAILED		
College of Physicians and Surgeons Baltimore	(1911)	68 9
Baltimore Medical College	(1912)	74 2
Columbia University College of Phys and Surgs	(1876)	56
Woman s Medical College of Pennsylvania	(1912)	73 8
Jefferson Medical College	(1912)	68 5
University of the South	(1904)	67 7
Queen s University Kingston Ontario	(1907)	68 7

Connecticut Eclectic July Report

Dr Thomas S Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports that at the meeting held at New Haven, July 9, 1912, one candidate, a graduate of Bennett Medical College, 1906, was licensed through reciprocity with Pennsylvania

Ohio June Report

Dr George H Matson secretary of the Ohio State Medical Board, reports the written, oral and practical examination held at Columbus, June 18 21, 1912 The number of subjects examined in was 11, total number of questions asked, 110, percentage required to pass, 75 The total number of candidates examined was 208 of whom 191 passed, including 9 osteopaths, and 16 failed, including 5 osteopaths One certificate was withheld The following colleges were represented

College	Year Grad.	Per Cent
PASSED		
Rush Medical College	(1912)	87
University of Louisville	(1909)	84 2
University of Michigan Homeopathic College	(1912)	81 6
Starling-Ohio Medical College	(1912)	75 7 76 6 77 77 4 77 5 78 78 3 79 4 79 7 79 8 80 80 80 7 80 8 80 9 81 81 2 81 2 81 2 81.5 81 6 81 8 81 9 82 82 82 82 1 82 3 82.4 82 4 82 4 82 7 82 7 82.7 82 7 82 8 83 83 5 83 5 83 7 83 9 84 1 84 1 84 2 84 6 85 2 85 4 85 5 86 86 2 86.3, 86 7 87 2
Ohio Miami Medical College	(1910) (1912)	79 7 75 75 76 75 6 76 7 76 7 77 5 78 78 79 1 79 2 79 5 80 80 1 80 2 80.3 80 4 80 6 80 6 80 7 80 8 81 81 2 81 5 81 6 81 8 82 1 82 1 82 2 82 4 82 5 82 9 83 83 3 83 7 83 8 83 9 84 7 84 8 85 85 2 86 8 86 9 87
Western Reserve University	(1912)	78 3 78 8 79 80 80 2 80 3 80 7 80 8 80 9 81 3 82, 82 2 82 2 82 5 83 1, 83 4, 83 6 83 8 84 84 84 84 6 84 7 85 1 85 2 85 2 85 6 86 7 86 9 87 87 4 87 5 88
Cleveland College of Physicians and Surgeons	(1912)	77 4, 77 9 80 8 81 3 82 1 82 6 82 9 83 84.2 84 3 84 8 85 85 4, 85 5 87 7
Cleveland Homeopathic College	(1909)	78 2

Cleveland Pulte Medical College	(1912)	75 2 76 3 77 5 77 8 80' 81 81 4 83
Eclectic Medical College Cincinnati	(1912)	75 6 76 2 76 5 78 7, 79 5 80 6
Toledo Medical College	(1912)	75 7 76 5, 78 8 78 8 79 5 81 5 84 86 7
Miami Medical College	(1890)	76 1
Jefferson Medical College	(1902) 78 3 (1912)	76 1 80 5
University of Pennsylvania	(1910) 82 (1911)	81 8
University of Pittsburgh	(1911)	78 9
Medico Chirurgical College of Philadelphia	(1912)	79 5
Hahnemann Med Coll and Hospital Philadelphia	(1911)	77 4
Lincoln Memorial University	(1911)	75 4

FAILED

Cleveland University of Medicine and Surgery	(1890)	53
Starling Ohio Medical College	(1912)	73 5
Ohio-Miami Medical College	(1912)	71 5 73
Cleveland Pulte Medical College	(1912)	69 2 73 7 74 4
Eclectic Medical College Cincinnati	(1911)	71 5 * 73 3
Toledo Medical College	(1912)	74 3
Royal University of Naples Italy	(1911)	72

* Third examination

The following questions were asked

ANATOMY

1 What are the two kinds of bone tissue and where is each one found? 2 What tends to prevent anterior displacement at the elbow joint? 3 What muscles connect the scapula with the trunk? 4 Describe and locate each of the valves of the heart 5 Name the visceral branches of the abdominal aorta

PHYSIOLOGY

1 Name four conditions that influence the composition of the blood in health Describe such influence 2 State what you know about the distribution and structure of the capillaries 3 What purpose is served by the arrangement of valves in veins and where are they most generously placed? 4 What is the object of respiration? Define complemental reserve and residual air 5 What is the condition of the vascular system in asphyxiation 6 State what you know of the office of the thyroid gland and of the effects on the body of its complete removal 7 Describe the mechanism of vomiting and what general muscles are involved in the act 8 What structures of the kidney are chiefly concerned in filtration? What effect does increased blood pressure have on the process? 9 What are the principal morbid effects of division of the fifth nerve? 10 To what property does muscle owe its activity? Name four conditions which affect the irritability of muscles and state how

CHEMISTRY

1 What are ferments? Name and explain the action of the salivary gastric and pancreatic ferments 2 Name two neurotic poisons Give antidote of each 2 Name and give antidote of three poisons most frequently used for suicidal purposes 4 Define atomic weight molecular weight acid base and radical 5 Name the principal acids and give source of each Name the principal alkalies and give source of each Name four of the principal bases and give source of each 6 Write the chemical reaction that occurs when bicarbonate of sodium is given for hyperacidity of the gastric juice 7 How would you distinguish chemically between uric acid and urea? 8 What is catalysis? What is its value in chemistry? 9 Define or explain the term hardness as applied to a potable water What makes water hard? Give a test for chlorids in water 10 What are the principal constituents of cow s milk? Give chemical explanation of the souring and curdling of milk

PATHOLOGY

1 Give in detail the vascular changes in a simple inflammation 2 What is metastasis? Name three pathologic conditions in which it occurs 3 Describe a typical lesion produced by the tubercle bacillus 4 Describe minutely the process of healing in an infected wound of the skin 5 What is a thrombus? What are its possible terminations? 6 What local defensive measure does the organism use to limit an appendiceal inflammation? 7 Is there any importance to phagocytosis? Why? 8 How would you make a Widal test? 9 On what principle does vaccination against typhoid depend? How is the vaccine prepared? 10 Describe the exudate in a pneumonic lung in the stage of red hepatization

DIAGNOSIS

1 What indications may be derived from an increased dulness of the cardiac area toward the left and downward? 2 Define râles mention their typical types and their pathologic significance 3 Where do you find the normal apex beat and what indications do you derive from its displacement? 4 In what pathologic conditions do you find Cheyne Stokes breathing? 5 What indication is given by a decreased resonance dulness in the left axillary line? 6 What diagnostic significance do you derive from an increased resonance on one side of the chest? 7 To what pathologic conditions is a general distention of the abdomen due? 8 State how you determine the shape and size of the liver by percussion 9 What pathologic significance is given to the absence of the plantar reflex—Babinski phenomenon 10 In what pathologic afflictions do you find facial paralysis?

PRACTICE

1 Differentiate between infectious and contagious diseases 2 Give the etiology symptoms and clinical findings of bronchial asthma 3 Give the cause of hematuria How may the source of the blood be inferred? 4 Differentiate between rheumatic fever and pyemia with suppuration Arthritis and gonorrheal arthritis 5 Describe procedure in making a physical examination of the abdomen 6. Give causation symptoms and treatment of acute cholecystitis. 7 Differentiat coma of cerebral hemorrhage from that of diabetes mellitus. Give treatment for the latter 8 Give etiology and symptomatology of empyema 9 Diagnose gastric ulcer 10 Define and give symptoms, diagnosis and treatment of acute articular rheumatism

SURGERY

1 Diagnose pleuritic effusion purulent and non purulent 2. Name causes for chronic inflammation of bone Do they always pass through an acute stage? Are they ever amenable to medical treatment? Give the most common symptom? 3 Give supplementary and surgical treatment for tuberculous knee-joint disease in children 4 What are the most common complications following amputation? How met? 5 Define coxalgia and give treatment

OBSTETRICS

1 What symptoms would cause you to suspect ectopic pregnancy? 2 Give diagnosis and management of placenta prævia 3 Give cause symptoms and treatment of the various forms of dysmenorrhea 4 What are the dangers of vaginal examinations during labor and what can be learned by them? 5 Outline your attentions to a new born child up to the time it is turned over to the nurse

DERMATOLOGY SYPHILOLOGY AND DISEASES OF THE EYE EAR NOSE AND THROAT

1 Describe seborrhea capillitii (of the scalp) and differentiate it from psoriasis 2 How do you recognize scabies and how treat it? 3 Describe leg ulcers and give treatment 4 What is the initial lesion of syphilis? 5 Describe syphilitic roseola and state how it is recognized 6 Define astigmatism Give its causes, symptoms and state how to improve the vision with lenses 7 Describe dacryocystitis mention its causes and outline treatment 8 Describe otitis media purulenta and the dangers which may result 9 Describe catarrhal laryngitis 10 How do you recognize nasal polypi? Give causes and treatment

MATERIA MEDICA AND THERAPEUTICS (REGULAR)

1 What drugs would you use in acute articular rheumatism? Write a prescription for each 2 Name four drugs giving dose of each that are used hypodermically What precautions should be observed in administering them 3 Mention indications for the use of arsenic In what forms is it used? Give dose of each 4 Explain the action and use of diuretics 5 Name the preparations and alkaloids of opium What are the chief indications for their use? State the dose of each 6 Name the preparations of veratrum virid giving dose of each Give treatment for overdose 7 Name three cerebral sedatives Give dose and use of each 8 Describe the physiologic action and state the therapeutic use of digitalis 9 Name two drugs used in the treatment of intermittent fever Give dose of each and describe the action of each 10 Is electricity indicated in acute tubercular synovitis? If so what form would you use?

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC)

1 Give the leading indications for calcarea iodid 2 Differentiate ipecac and tartar emetic 3 Differentiate stannum and phosphorus 3 How much morphin would you give a child under two years of age hypodermatically? Why? 5 What are the physiologic effects of gelsemium? 6 Give the leading indications for cantharis Crotalus 7 Name three remedies having a specific influence on the action of the heart? Give the indications for the first named 8 Name three remedies having a specific action on the kidneys. Three on the liver 9 Name three remedies having a specific action on the lungs on the female genital organs Give indication for sepia 10 Is electricity indicated in acute tuberculous synovitis? If so what form would you use?

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC)

1 Give specific use of veratrum viride 2 For what is benzoic acid principally used? How does it act? 3 Differentiate between colocynth dioscorea nux vomica and magnesium sulphate in their use in abdominal pain. 4 What is the common name of piper methysticum? For what is it used and what is its effect? 5 Discuss the therapeutic uses of collinsonia 6 Give antidotes to arsenic carbolic acid oxalic acid belladonna and strychnia. 7 Discourse briefly on podophyllum 8 What are the physiologic effects of gelsemium? 9 From what is thuja occidentalis obtained? Give use 10 Is electricity indicated in acute tuberculous synovitis? If so what form would you use?

Rhode Island July Report

Dr Gardner T Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence July 11 12 1912 The number of subjects examined in was 7, total number of questions asked 70 percentage required to pass 80 The total number of candidates examined was 15 of whom 8 passed and 7 failed The following colleges were represented

PASSED

College	Year Grad	Per Cent
Boston University	(1900) 81 (1912)	84
Tufts College Medical School	(1912)	82 81 83 85
Harvard Medical School	(1912)	85
Jefferson Medical College	(1912)	84

FAILED

College	Year Grad	Per Cent
Tufts College Med School (1903) 79 (1911) 77	(1912)	77
Harvard University Medical School	(1908)	72
Jefferson Medical College	(1901)	78
Medico-Chirurgical College of Philadelphia	(1912)	77
Laval University Quebec	(1911)	75

South Dakota July Report

Dr L C Hill secretary of the South Dakota State Board of Medical Examiners reports the written and oral examination held at Deadwood July 10 1912 The number of subjects examined in was 11 total number of questions asked 100 percentage required to pass 75 The total number of candidates examined was 11 of whom 10 passed and 1 failed One candidate was licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent
College of Physicians and Surgeons Chicago	(1912)	82, 89 7
Jenner Medical College	(1910)	80
Northwestern University Medical School	(1910)	77
	(1911)	87
Indiana University	(1909)	88
University of Louisville	(1910)	87
Barnes Medical College	(1905)	81
Creighton Medical College	(1912)	82
Jefferson Medical College	(1910)	88

FAILED

College	Year Grad	Per Cent
Hamline University	(1904)	69

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
Creighton Medical College	(1911)	Nebraska

Vermont July Report

Dr W Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, July 9 11, 1912 The number of subjects examined in was 12, total number of questions asked, 90, percentage required to pass, 75 The total number of candidates examined was 40 of whom 38 passed and 2 failed Two candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent
Yale Medical School	(1904)	85 6
George Washington University	(1912)	81 6
Baltimore Medical College	(1911)	80
Dartmouth Medical School	(1912)	78 1 80 8
Woman s Medical College of Pennsylvania	(1912)	82 7
Medico Chirurgical College of Philadelphia	(1912)	80 2
University of Vermont	(1910)	79 6
	(1911)	84 5
	(1912)	75 2 75 3 76 4 77 1 77 7 77 7 78 3 78 6 79 1 79 5 79 8 79 9 81 1 81 5 81 6 82 1 82 5 82 7 83 1 84 1 84 2 84 7 84 8 85 6 85 7 85 8 87 4 88 1 88 6

FAILED

College	Year Grad	Per Cent
University of Vermont	(1911)	67 8
University of Naples Italy	(1902)	67 1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Woman s Medical College of Pennsylvania	(1897)	Dist Colum
Laval University Montreal Quebec	(1904)	Maine

Washington July Report

Dr F P Witter, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Tacoma, July 6, 1912. The number of subjects examined in was 11, total number of questions asked, 110, percentage required to pass, 75, and not less than 60 in any one branch The total number of candidates examined was 56 of whom 36 passed, including 1 osteopath, and 20 failed, including 3 osteopaths The following colleges were represented

PASSED

College	Year Grad	Total No Examined
University of Colorado	(1909) (1910) (1911)	3
Coll of Phys and Surg Chicago	(1902) (1910) (1912 2)	4
Chicago College of Medicine and Surgery	(1910)	1
Rush Medical College	(1903) (1912 2)	3
Northwestern University Medical School	(1911)	3
University of Louisville	(1911)	1
State University of Iowa College of Medicine	(1909)	1
Kansas Medical College	(1911)	1
University of Michigan Dept of Medicine and Surg	(1908)	1
Johns Hopkins University	(1911)	1
University of Minnesota College of Med and Surg	(1911)	1
St Louis University	(1908)	1
Washington University St Louis	(1911)	1
Missouri Medical College	(1895)	1
University of Oregon	(1911 3) (1912)	4
Jefferson Medical College	(1911) (1912 2)	3
University of the South	(1908)	1
Lincoln Memorial University	(1892)	1
Vanderbilt University	(1912)	1
Milwaukee Medical College	(1897)	1
McGill University Quebec	(1909)	1

FAILED

College	Year Grad	Total No Examined
Illinois Medical College	(1910)	1
College of Physicians and Surgeons Chicago	(1909)	1
Hahnemann Medical College and Hospital Chicago	(1906)	1
Chicago College of Medicine and Surgery	(1908) (1909)	2
Bennett Medical College	(1911)	1
Physio-Medical College of Indiana	(1898)	1
University of Michigan Dept of Med and Surg	(1898)	1
Detroit Homeopathic College	(1908)	1
University of Minnesota College of Med and Surg	(1905)	1
St Louis College of Physicians and Surgeons	(1893)	1
University of Buffalo	(1888)	1
Eclectic Medical College Cincinnati	(1911)	1
University of Nashville	(1902)	1
University of Siena Italy	(1909)	1
University of Berne Switzerland	(1884)	1
University of Lemberg Austria	(1905)	1

Book Notices

Essai sur l'Anatomie et la Médecine Opératoire du Tronc Cœliaque et de ses Branches de l'Artère Hépatique en Particulier. Par le Dr P do Rio Branco (da Silva Paranhos), Ancien Interne des Hôpitaux de Paris. Paper Price 22 francs Pp 828 with illustrations Paris G Steinheil 1912.

This work is a comprehensive exposition of the history of the embryologic development and the descriptive and surgical anatomy of the celiac axis Not content with describing the normal and usual course and the relations of the celiac group of vessels, the author has in addition elaborately and carefully investigated, examined and recorded their many anomalies and unusual arrangements As the most important branch of the celiac axis, the hepatic artery is given special attention, the major part of the work being given over to the description of this vessel and its branches The best methods of approaching and ligating the gastric, hepatic and splenic arteries are also fully described The illustrations are good, many being original

The author points out that a full knowledge, not only of the usual, but also less common anatomy of the branches of the celiac axis is essential to the surgeon, who may at any time be called on to deal with conditions making such knowledge an absolute necessity The active surgeon, for whom the work is especially designed will scarcely find time to search out from the voluminous mass of details the few valuable additions to our knowledge of the celiac axis that the author has contributed

Henry Phipps Institute for the Study Treatment and Prevention of Tuberculosis Sixth Annual Report 1908 1910 Paper

This report is the first since the Henry Phipps Institute came under the control of the University of Pennsylvania and contains much statistical material in the form of tables covering the period from Feb 1, 1908, to Feb 1, 1910, in addition to a number of papers on various phases of tuberculosis and the results of research work in the Institute The tables are given without much comment, but present in a graphic way material of extreme importance covering every phase of tuberculosis—patients housing conditions, contagion, pathology etc The editors announce that the article on 'The Finding of Alleged Tubercle Bacilli in the Blood" is to be attributed to Dr E Burville Holmes instead of to Dr Joseph McFarland

Mitteilungen aus der medizinischen Fakultät der kaiserlichen Universität zu Tokyo Volume 10 first half Paper 1911

This collection of papers, published under the auspices of a committee of the faculty of the Imperial University of Tokyo, is the first number of Volume 10 of a periodical which usually contains from two to five similar numbers per volume The articles are records of high grade scientific work and are prepared and printed in a form creditable to the Imperial University The articles in the present number deal with disturbances of the conductive power of the heart, Thomsen s disease a peculiar bacillus exciting an acute inflammation of the knee and a typical disease of the tuberosity of the tibia in adolescence The articles are excellently illustrated

The Index of Ophthalmology and Otolaryngology Published Monthly by Dr Joseph C Beck Editor Volume 1 Price Complete Index $5 Ophthalmological Separate $2 50 Otolaryngological Separate $2 50 J C Beck, 2551 N Clark St, Chicago

This book contains the twelve monthly issues of the 'Index" for 1911 Articles on ear and throat affections which have appeared in the literature since Jan 1, 1911 up to and including December 1911, are listed under various headings, such as Nasal Cavity," Septum," Accessory Sinuses," 'Oropharynx," 'Larynx," Mastoid," Internal Ear," etc As an addendum appears an authors' index for the entire year, giving the author's name, the month in which the article was listed and in what division it appeared This is a wealth of information presented in concise form and suitably arranged, for which the otolaryngologist is no doubt thankful.

Medicolegal

Physician Asserting Privilege

(Trieber vs New York & Queens County Railway Co (N Y), 134 N Y Supp 267)

The Appellate Division of the Supreme Court of New York, Second Department, holds that in this action, brought to recover damages for the death of the plaintiff's husband through the alleged negligence of the defendant, there was no reversible error in sustaining a physician in claiming privilege The physician, who had attended the decedent some five or six years before the accident, was called as a witness by the defendant and asked what he treated him for at that time The physician refused to answer, claiming that it would be improper to disclose information acquired by him in his professional capacity The trial court declined to compel him to answer unless there was an express waiver by the plaintiff, and, while no formal objection was made by the plaintiff, there was at the same time no express waiver made, and the question remained unanswered. It was true, the Appellate Division says, that the privilege claimed by the physician did not belong to him, but to the patient, and could have been waived by the personal representative, the plaintiff At the same time, though technically the physician was claiming a right which he did not possess, yet a refusal by the court to compel him to answer would not, even on a trial where there had been an express waiver, be reversible error, unless it appeared that the evidence sought was material to the question to be determined, while the question here was not specific enough to appear material on its face. To say that the failure of the court to compel the witness to answer this question was against the ends of justice on this inquisition of damages would require some speculation as to what the answer would have been, and this court is not at liberty to resort to speculation in order to reverse the decision of the court which presided over the inquisition

Not Consultation of Physician or Being Treated for an Ailment

(Modern Woodmen of America vs Miles (Ind), 97 N E R 1009)

The Supreme Court of Indiana holds that an applicant for life insurance had not consulted, nor been treated, by a physician, for any personal ailment within seven years, although the evidence showed that, within that period, in a physician's office, he had told the physician he had a headache, and the physician gave him a dozen trade tablets for which he made a charge of 15 or 20 cents, the physician asking him no questions about the headache, and making no examination The court says that it does not believe that the man "consulted" the physician within the ordinary meaning of the word, having neither sought nor received any professional advice, information or instruction Neither was he treated for any ailment," within the meaning of that word in the question the cause of the uneasiness, or affection, apparently having been considered as known by both the man and the physician, and the latter having simply given him some trade tablets Furthermore if it did constitute treatment for an ailment, within the meaning of that word as used in the application the court is constrained to hold that the applicant's answer to the question, under the evidence, did not constitute a breach of warranty The question called for information covering a period of seven years It was framed for practical use, to elicit substantial information from people of average memory Yet the insurer was bound to know that it would be impossible for a person of average memory to give the dates and particulars of each treatment for, or consultation about, every temporary functional disorder he may have suffered during a seven year period While the authorities are not in harmony on the proposition, this court is of the opinion that the correct rule applicable to questions of this character is that the disorder, to constitute a breach of warranty must be of a substantial nature, and not a mere temporary functional indisposition

Society Proceedings

COMING MEETINGS

Amer Assn for Study etc of Infant Mortality Cleveland, Oct 2 5
Amer Assn of Obstetricians and Gynecologists Toledo Sept 17 19
American Association of Railway Surgeons Chicago Oct 16 18
American Public Health Association Washington D C Sept 18 20.
American Roentgen Ray Society Niagara Falls Sept 11 14
Assn of Military Surgeons of the United States, Baltimore Oct 1-4
Colorado State Medical Society Pueblo Sept. 24 26.
Conf State Bds of Health of N Am Washington D C Sept. 20 21.
Delaware State Medical Society Wilmington Oct 8
Indiana State Medical Association Indianapolis, Sept. 26-27
Internat. Congress on Hygiene etc. Washington D C Sept 23 28.
Kentucky State Medical Association Louisville Oct 29-31
Medical Association of the Southwest Hot Springs Ark Oct 8 10
Mississippi Valley Medical Association Chicago Oct 22 24
National Association for Study of Pellagra Columbus S C Oct 3-4
Nevada State Medical Association Reno Oct 8 10
New Mexico Medical Society Roswell Sept 12 14
Pennsylvania State Medical Society Scranton Sept 23 26
Utah State Medical Association Ogden Sept 24 25
Vermont State Medical Society Montpelier Oct 10 11
Virginia Medical Society Norfolk Oct 22 25
Wyoming State Medical Society Sheridan Sept. 17

MINNESOTA STATE MEDICAL ASSOCIATION

Forty Fourth Annual Meeting held at Duluth Aug 14 15 1912

(Continued from p 745)

Treatment of Hernia in Children

Dr. A J Ochsner, Chicago The development of hernia in children is favored by (1) faulty development of the abdominal wall, (2) insufficient strength in the tissues involved in closing the umbilical, inguinal and femoral openings, (3) abnormal intra abdominal pressure (4) unclosed condition of the tunica vaginalis Causes 1 and 2 are frequently inherited The abnormal intra abdominal pressure is due (a) to gaseous distention resulting from improper feeding, (b) to the exertion necessary to evacuate the bladder on account of obstruction due to phimosis, (c) to severe, long continued coughs, (d) to vomiting, (e) rarely to traumatism or overexertion

Approximately 95 per cent of all cases of hernia in children will heal spontaneously if the abnormal intra abdominal pressure is relieved and the hernial sac is kept empty This can be accomplished by means of trusses, or much more rapidly in inguinal and femoral hernia, by placing the child in bed with the foot of the bed elevated The time required usually does not exceed six weeks Children with a tendency to the formation of hernia should be guarded against developing coughs Their diet should be given at regular times and chosen with a view to avoiding gaseous distention Constipation should be prevented In case of boys, phimosis should be relieved, if present, by operation Badly nourished and badly cared for children of the poor should be treated in hospitals, being placed in bed in the Trendelenburg position the cause of increased intra abdominal pressure being removed at the same time by proper diet and treatment

Operation is indicated (1) in strangulated hernia, (2) in irreducible hernia due to adhesions, (3) in case the opening is unusually large in a free hernia especially if the condition is hereditary, (4) in reducible hydrocele (5) in cases with undescended testicle unless they show a tendency toward spontaneous cure Except in Class 3 the operation should consist simply in carefully dissecting out the sac or in certain cases of congenital hernia the neck of the sac ligating it within the abdominal cavity, cutting away the sac and permitting the stump to retract within the abdominal cavity and closing the skin wound In Class 3 the Ferguson Andrews operation is indicated In Class 5 the Bevan Ferguson Andrews operation is indicated

The recumbent position, with the foot of the bed elevated is of very great importance in the after treatment of operative cases as well as in the non operative treatment in hernia in children In young children who will not remain in bed with the foot of the bed elevated this position can usually be maintained by applying rubber adhesive straps to both lower extremities and having the child held in a vertical position by means of weights and pulleys If the child can not be kept in this position, a well fitting truss should be worn night and day until there has been no protrusion for at least six months, at the same time the necessary precautions must be constantly taken to guard against abnormal intra abdominal pressure from any cause

Blood-Vessel Anastomosis

Dr J Frank Corbett Minneapolis My failures have been many in applying the principles of Carrel, and I will enumerate their causes so far as I know too long storage of blood vessel, interpolation of adventitia between segments of vessel, failure to remove small clots and fibrin ferment from inside vessels traumatism of endothelium of blood vessel by clamp, drying of endothelium resulting from tardy application of petrolatum, too much time in operating The technic is simple, the principles difficult to master With a thorough knowledge of these principles and a complete application of this knowledge in every detail success should attend the suturing of a normal vessel

The application of blood vessel work seems limited to the following fields (1) repair of blood vessels accidentally torn and free from thrombosis, (2) *artery to vein anastomosis* where the artery has been destroyed by mechanical or surgical interference, (3) transfusion In addition, transfusion is applicable only (1) to cases of severe and extreme anemia from hemorrhage, (2) to cases of uncontrollable hemorrhage from jaundice or hemophilia, (3) to cases of shock

Unifying the Medical Profession

Dr John A. Witherspoon Nashville I cannot imagine any body more democratic having as its units the state organization and the county organization, than the American Medical Association If it is a democratic body composed of these units, just as sure as we live its objects will be accomplished only when these units form themselves into one single unit, with a singleness of purpose, namely, to bring that great national body up to its true state of usefulness The American Medical Association ought to stand for everything that is good and great in American medicine, and I am sure that if it is handled properly if these units will do their part, there will be no such thing as failure and no ground for criticism

Ten years ago there were four times as many medical colleges in the United States as existed in the world elsewhere We had at one time 172 medical colleges A great many of these schools were improperly equipped both in teaching facilities and in teachers but that condition has gradually been transformed into a better one, until now forty or fifty of these schools have gone out of existence The time has come when the great profession of America has risen in its might and determined that no medical school shall live that does not live for a just purpose namely, to equip young men to assume that most sacred of all obligations the saving of human life

With the influence of the American Medical Association coming from the units we shall be able to accomplish the objects we desire In my judgment it will only be a matter of a few years before we shall be proud we have such an organization as the American Medical Association with sufficient funds to push the great work of doing good among the people, and I ask you in this great progressive state of Minnesota to rise up as your units are called for and meet the demands of your country as you have met them for your state If you will do that, there will be no slurs on the state of Minnesota

Operations for Uterine Prolapse

Dr A. W Abbott, Minneapolis Vaginal repair with plication of the uterosacral and anterior broad ligaments per abdomen has been adopted by me in thirty five cases in the last four years with no known failures In case there is much tension on the uterosacral ligaments a narrow Albert Smith pessary is worn for a couple of months This operation is applicable either before or after the menopause, is anatomically correct and does not exclude other necessary abdominal operations, the only mutilation is the abdominal incision It is free from the dragging pains complained of after fixation and in my experience affords a permanent cure.

Acute Appendicitis in Childhood

Dr N L Werner, Red Wing I had a case of appendicitis in a child which was interesting inasmuch as the symptoms pointed to a kidney lesion rather than to the appendix as the seat of the trouble The patient, a boy of 12, presented the following symptoms pain, of acute onset, all over the abdomen, but most prominent in the epigastric region, followed in a few hours by nausea and vomiting, slight tympanites and albuminuria, and some traces of pus in the urine. The right rectus was rigid, the tenderness was not over McBurney's point but above and behind the superior spine of the ilium. The right kidney appeared swollen and tender Pains extended down the right thigh, and one prominent symptom was inability to extend the right leg the leg being held in a flexed position at all times, regardless of the position assumed in bed There was a leukocytosis of 16 000 operation was delayed until the leukocyte count ran up to 24,000, and the dulness on percussion extended to the edge of the right rectus muscle The operation consisted of an intra abdominal incision, and the drainage of a large pocket of pus In a few days the patient was able to extend the leg completely, the pus disappeared from the urine, and the albuminuria cleared up Recovery was rapid I do not believe it is safe to use any other method of treatment than operation in cases in which we are reasonably certain we have an acute infection of the appendix

Treatment of Septic Endocarditis

Dr Soren P Rees, Minneapolis A blood culture should be the first, and not the last, step in the treatment It is not only the best means of making an early diagnosis and a probable prognosis, but will assist greatly in the treatment by suggesting appropriate measures and especially by excluding drugs that consume the patient's strength Complete rest is the second step Removal of the primary infection is the next step This focus can usually be found from the history and by physical examination The tonic or supportive treatment should combine all that we have learned about the value of sunshine, pure air and selected food in tuberculosis, blood tonics in anemia, hot water between meals and colonic flushing in auto intoxication, and light massage and good nursing in malnutrition Not one but all of these measures in wise combination must be employed The question of specific medication by means of an autogenous vaccine is still on trial The principle seems right and some reported cases undoubtedly testify to its value.

The Diagnosis of Diseases Associated With Enlargement of the Spleen

Dr H. Z Giffin, Rochester Movable and wandering spleens are occasionally seen and on superficial examination may be diagnosed as movable kidneys The spleen may descend as low as the pelvis, but if the wandering spleen be kept in mind the organ usually can be recognized by its contour Two patients with wandering spleen have been operated on at St Mary's Hospital One of the patients had been previously operated on elsewhere for movable kidney, apparently as the result of a mistaken diagnosis The kidney had been stitched up but the spleen remained as movable as before Tumors of the stomach and intestine will rarely be confusing in the diagnosis of these cases The spleen may be enlarged temporarily in many of the acute infections of childhood, also in rickets, and other forms of malnutrition in babies The enlargement of the spleen which occurs with typhoid generalized tuberculosis, and malaria need only be mentioned Syphilis of the spleen should always be considered as a possibility, and a Wassermann reaction should not be neglected in any questionable case Primary sarcoma of the spleen is rare, the growth of the organ is rapid and the clinical picture of an acute splenic anemia is presented Twenty four well authenticated cases have been reported Pernicious anemia may be associated with enlargement of the spleen and if the blood findings be not typical at the time of examination, a diagnosis may have to be deferred The spleen is not large, and in this there is a contrast with splenic anemia and Banti's disease.

A review of the diseases associated with enlargement of the leen impresses one with the fact that exhaustive examinations nd complete notes are necessary if we may hope to arrive at definite grouping of these obscure conditions Certain rare isorders must be kept freshly in mind Laboratory findings ust be utilized in the differentiation more liberally than is rdinarily necessary

Rectal Section for Pelvic Abscess in Men

DR. ARCHIBALD MACLAREN, St Paul A boy, aged 12, was perated on for perforative appendicitis At the operation a ommencing general septic peritonitis, with much pus in the bdomen, was found An enlarged gangrenous perforated ppendix was removed, two rubber drainage tubes were introuced, one extending into the bottom of the pelvis, and the ther to the region of the base of the appendix That after oon the temperature went up to 102 F, but soon subsided, anging between 100 and 101 F until the tenth day when it eached 103 F The pulse in the meantime ranged between 10 and 135 I saw this boy first on the tenth day following his operation When the anus was exposed, there was bulging t the anterior wall of the rectum, the peritoneal culdesac was istended by a collection of fluid which filled the pelvis This as immediately opened by a sharp pointed pair of scissors, sed as a dilator instead of cutting At least a quart of, first, erous [illegible] later, [illegible], very offensive colon pus was vacuated, and a winged rubber tube was inserted The same afternoon the boy was crying for food and has steadily improved until he is now out of danger and ready to go home. The success or failure in dealing with appendiceal abscess cases depends on vigilance rather than on the methods of operation or drainage.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

Archives of Internal Medicine, Chicago

August 15 X No 2 pp [illegible] 163

1 *Influence of Carbonated Brine (Nauheim) Baths on Blood Pressure J M Swan, Rochester N Y
2 *Clinical Study of Effects of Sleep and Rest on Blood Pressure. H. Br[illegible]s and J H. Carroll, New York
3 Arterial Lesions Found in Persons Dying from Acute Infections and Attempts to Produce Arterial Lesions in Animals by Non-Infectious Toxins. C Frothingham, Boston.
4 Some Clinical and Experimental Observations with a Saccharo[illegible] L M B[illegible]d, Pomona, Cal.
5 Case of "Pancreatic Diabetes Mellitus" by Herman O Mosenthal G Lusk, New York

1 Influence of Carbonated Brine Baths on Blood-Pressure —A very careful clinical study of [illegible] cases leads Swan to the con[illegible] that carbona[illegible] no con[illegible] effect on the blood pressure [illegible] In the cases [illegible] of treatment [illegible] higher [illegible] of the [illegible] one case [illegible] of de[illegible]

In the [illegible] in that [illegible] In ca[illegible]

In this series of cases the systolic pressure was lowered more often than it was raised but the pulse pressure was raised more often than it was lowered It seems to Swan a dangerous procedure to use a form of treatment in a case of cardiac fibrosis which may be followed by an increase of systolic pressure of 22 mm, or an increase of pulse pressure of 32 mm In cases of parenchymatous myocarditis the effect of the baths on blood pressure is usually to raise it, but in some cases the baths are followed by a reduction of both the systolic and the pulse pressures In cases of dilatation of the heart, cases of hypertrophy and dilatation of the heart, cases of mitral regurgitation, cases of hypertrophy of the heart, cases of tachycardia and cases of aortic regurgitation, the same uncertainty of results was seen except that in cases of mitral regurgitation the pulse pressure was reduced in every one of the five cases, and in cases of aortic regurgitation the diastolic pressure and the mean pressure were reduced in every one of three cases

In a case of arteriosclerosis an increase of 17 mm in the systolic pressure and 23 mm in pulse pressure might result disastrously In a case of chronic parenchymatous nephritis an increase of 9 mm in systolic pressure and of 22 mm in pulse pressure may or may not be negligible In a case of interstitial nephritis an increase of 50 mm in systolic pressure could hardly be thought desirable The reduction of systolic pressure in a case of weak heart can scarcely be looked on as a favorable circumstance The benefit in the subjective symptoms in cases of heart disease which follows a course of carbonated brine baths is not dependent on the influence of the treatment on the blood pressure

2 Effects of Sleep and Rest on Blood Pressure Clinical observations appear to justify the discouraging conclusion that sleep drop cannot as yet be utilized therapeutically to lower the blood pressure and that although its effect in high blood pressure cases is more marked than that of any drug in medicinal doses, it cannot be employed therapeutically In an attempt to apply these observations clinically the authors endeavored to ascertain whether prolonged sleep causes a proportionate lowering of the pressure Within an ordinary degree at least this does not appear to be the case and attempts to secure even a temporarily lower twenty four hour pressure by prolonging or deepening the sleep were apparently without avail Furthermore they found that little difference existed in the total twenty four hour pressure whether the patient is confined to bed or is allowed to be up and about

A special series of observations [illegible] conducted to determine whether the sleep drop might [illegible] artificially increased in order to secure a lower pressure in concrete cases of high pressure They [illegible] in this direction, and in cases in [illegible] had been previously determined [illegible] [illegible]

4 O[illegible]

experimentation as did the fungus found in the vaginal discharge in the first case This organism resembles the *Saccharomyces cerevisiæ* both culturally and morphologically, but the latter on all culture media grows less profusely and is less spherical It is about the size of a red blood corpuscle, possesses a double contoured capsule and contains fine granules and refractile bodies like fat or vacuoles Old cultures show lessening of granules and extension of vacuoles, and numerous empty capsules It grows by budding and possesses a nucleus which can be demonstrated by special staining It was mixed with other organisms in most cases, but has been found as the only apparent cause of infection in a few patients in whom disappearance of the organism has been followed by alleviation and disappearance of the symptoms Autobacterins made from this yeast organism have seemed to cause some improvement in three cases and an exacerbation of symptoms in one The most benefit has been derived from the use of the iodids in large doses An extract prepared from this saccharomycete gave a slight reaction in a skin test on two patients The serum of four patients gave a positive agglutination test for the yeast

Journal of South Carolina Medical Association, Seneca

July VIII No 7 pp 187 217

6 Medical Ethics. D Furman Greenville
7 Medical and Surgical Treatment of Gall Stones J Graham Durham N C
8 How Long Has Pellagra Existed in South Carolina? J W Babcock Columbia
9 Contagiousness of Laryngeal and Pulmonary Tuberculosis W P Porcher Charleston

August VIII No 8, pp 218 241

10 Practical Method of Infant Feeding S R Lucas Florence
11 Bronchoscopy E W Carpenter Greenville
12 Rôle of Drainage. H W Rice Columbia

Boston Medical and Surgical Journal

August 15 CLXVII No 7 pp 207 238

13 Medicine and Humanity Physician as Promoter of Civilization J C Berry Worcester Mass
14 Present Knowledge of Physiology and Chemistry of Gastric Digestion as Applied to Vomiting in Infancy A. C Lastman Springfield Mass.
15 *Pneumonia Not a Rare Complication of Heat Prostration W D Reid Newton Mass

15 **Pneumonia as Complication of Heat Prostration**—In 158 cases of heat prostration treated at the Boston City Hospital July 2 13, 1911 Reid found seventeen cases of pneumonia This makes it a complication in about 10 7 per cent, a figure of such size that he feels sure that physicians should take it into consideration in giving a prognosis of any heat case Nine of the seventeen patients died Heat exhaustion, ten cases one pneumonia with fatal result Heat prostration, eighty eight cases, pneumonia ten, deaths two Heat stroke, sixty two cases pneumonia six all fatal There were forty four deaths from all causes and nine from pneumonia Therefore pneumonia caused one fifth of all the deaths Lobar pneumonia seven cases, two deaths No cases after heat stroke Usually affected one of the lower lobes Incubation one to four days Bronchopneumonia ten cases, seven deaths This was the only type following heat stroke and all were fatal Three out of the four following heat prostration recovered. One or both lower lobes were the only areas involved Incubation one to six days Sex shows no marked difference in results The greatest number of cases occurred between 20 and 30 years, but the severest mortality was in the decade 50 to 60 years Alcohol and arteriosclerosis were fatal complications Erysipelas and empyema necessitans were two sequelæ

Ophthalmology, Seattle

July VIII No 4 pp 461-636

16 Arteriosclerosis of Retinal Vessels (Angiosclerosis) E L Oatman New York
17 Treatment of Trachoma with Radium Use of Radium-Coated Celluloid Plates for This Purpose C H May New York.
18 Two Cases of Retinal Detachment in Myopes Cured by Simple Sclerectomy P Bettremieux Roubaix France
19 Metastatic Purulent Ophthalmia F W Alter Toledo Ohio
20 Sympathetic Iridocyclitis Following Cataract Extraction with Report of Case A Bray Philadelphia
21 Tripling Distance of Test Cards by Catoptrics J N Rhoads, Philadelphia
22 Alternative to Strabismus. A. A. Bradburne, Manchester England.
23 Pathologic Conditions of Eye Secondary to Disease of Lymphatics of Neck and Throat E W Alexander San Francisco
24 Rational Method of Removing Fragments of Iron from Interior of Eye F W Lamb Cincinnati.

Canadian Medical Association Journal, Toronto

August II No 8 pp 653 750

25 Treatment of Fractures of Long Bones. R J Manion
26 Labyrinth Tests. J P Morton
27 *Pleurisy in Children M Mackay Sherbrooke Quebec.
28 *Diet in Tuberculosis W B Kendall Gravenhurst.
29 Revolver Bullet in *Chiasma* Consecutive Binocular Blindness J N Roy Montreal
30 Does a Human Tick Borne Disease Exist in British Columbia? J L Todd Montreal
31 Some Experiences with Radium G S Ryerson

27 **Pleurisy in Children**—Mackay says that any child that comes under the physician's care with a primary pleurisy should be considered as a possible, nay more, a probable, victim of tuberculosis, and should be treated accordingly There is no use in telling the parents that the child has "weak lungs" and that they must be careful that it does not "catch cold." Give explicit directions and leave nothing to chance Correct all abnormalities, such as nasal obstruction, prohibit school for a prolonged period, unless the education can be carried on in the open air, and with this encourage out-door games rather than the frequency of poorly ventilated places of amusement Fresh air is to be prescribed day and night, and a personal inspection of the sleeping apartments should be made in order that a practical demonstration may be given If possible the residence should be located in the country or open suburb Give definite rules as to the quality as well as the quantity of food, too much knowledge is taken for granted in this subject, be precise Let the clothing be warm, yet light and comfortable Explain the methods of judicious "hardening" by means of cool sponging of the neck and chest Forbid undue exertion Last, but not least, impress the parents with the idea that the child must be taught self restraint and unselfishness This point of a physician's advice is not sought, and is seldom given, but it should not be omitted

28 **Diet in Tuberculosis**—Forced feeding in the treatment of pulmonary tuberculosis is not considered essential Great gains in weight should not be sought, but an endeavor made to secure a gradual increase in the patient's weight up to a point slightly above normal A lower protein content is better tolerated than the amounts now usually given The partaking of meals should be under close supervision, with rest before and after meals enforced Constant attention must be given to the question of proper proportions of food elements Cheerful and contented patients are more likely to be hearty eaters, and to progress favorably, than those who worry Eggs and milk are not indispensable in the dietetic management of tuberculous patients Lunches should not be given between meals unless there is a special reason It is a hardship to advise patients to procure food, the price of which is almost prohibitive, when a diet of equal or greater nutritive value can be purchased for less money

Journal of Cutaneous Diseases, New York

August XXX No 8 pp 461 513

32 Erythema Ab Igne M B Hartzell Philadelphia
33 Experience with Noguchi's Luetin Reaction H Fox New York
34 Alopecias in General with Special Reference to Hitherto Undescribed Form of Baldness Alopecia Indurata Atrophica R L Sutton Kansas City

Interstate Medical Journal, St Louis

August XIX No 8 pp 657 738

35 Precautions in Use of Tuberculin in Therapy F M Class, New York
36 When and How to Use Digitalis A F Taussig St Louis.
37 Variations in Clinical Picture of Gastric Ulcer W F Cheney San Francisco
38 Use and Abuse of Ligamentum Teres Uteri F W Bailey, St Louis
39 Chronic Universal Perihepatitis R W Wilcox New York.
40 Interpretation of Precordial Pain J M Patton Chicago

New York Medical Journal

August 17 XCVI No 7, pp 305 360

41 Prevention of Causes of Insanity A J Givens Stamford Conn
42 Newer Teachings of Diseases of Alimentary Canal M I Knapp New York.

43 Commoner Contagious Diseases of Childhood. C Herrman New York.
44 *Glycyltryptophan Test G A Friedmann New York
45 *Prognosis of Tuberculosis of Larynx S von Ruck Asheville N C
46 Pathology of Chorea F A. Hulst New York.
47 Chorea F C Eastman New York
48 Proteins D D Van Slyke New York

August 24 XCVI No 8 pp 361 408

49 Inheritance of Acquired Characters J Wright New York
50 Health Conditions in Canal Zone. S H Brown Philadelphia.
51 Fee Book of an Irish Physician of Seventeenth Century J J Walsh New York.
52 History of Surgical Hemostasis. P C Borden Washington D C
53 *Some Experiences with Lessilur Prirey Test B G R. Williams Paris Ill
54 Poisoned Blood Stream L. A Merriam Omaha Neb
55 Ten Sex Talks to Girls I D Steinhardt New York.
56 Technic of Radiography J Friedmann New York

44 **Glycyltryptophan Test.**—In making a resume of twenty one cases which he reported in a previous communication, with the nineteen reported here, Friedmann has only once in his series of cases found the glycyltryptophan test positive in benign pyloric obstruction This occurred with an enormous amount of sarcine in the contents of the stomach on fasting On the other hand he found it frequently positive in gastric cancer This gives value to the test, but it cannot be considered pathognomonic A case in which a positive glycyltryptophan test only should lead one to suspect gastric cancer, Friedmann has not observed so far The fact that in no case of anacidity, except cancer, a positive reaction has been obtained seems to speak in favor of the test The relative value of the test is evident. The tryptophan test without glycyltryptophan is no longer worthy of serious consideration

45 **Tuberculosis of Larynx.**—It is emphasized by von Ruck that tuberculous changes are present in the larynx of patients suffering from pulmonary tuberculosis much more frequently than is generally recognized The disease in the larynx in its early stages causes, as a rule, no definite or but slight subjective symptoms For this reason the physical examination of every tuberculous patient should include as much as a matter of routine the inspection of the larynx as an examination of the chest Slighter degrees of thickening of the mucosa which many observers are willing to accept as catarrhal are not infrequently tuberculous in nature, and may well suggest to the laryngologist who notes them in the course of his routine practice, the propriety of a physical examination of the chest Finally the prognosis of tuberculosis of the larynx in the earlier stages is no worse than that of the disease in the lungs

53 **Lessilur-Prirey Test.**—Williams has applied the tuberculous albumin reaction test as a routine procedure to all sputums examined, provided a sufficient amount of the sample was available Of these, the results of fifty one could be checked with clinical as well as microscopic findings In other words, some knowledge of the symptoms and signs were held in each case, and a diligent search was made for the bacillus of Koch and other suspicious microscopic elements He has concluded that while the positive test does not signify that every sputum is tuberculous, such would seem to be the case if the clinical data put the patient into the chronic class. In other words the test is sometimes positive in acute bronchitis, and usually positive in croupous pneumonia On the other hand, he has been unable to find albumin in chronic bronchitis, bronchial asthma and emphysema In this series of cases he met no sputums of bronchiectasis, gangrene or nontuberculous abscess, and is therefore, unprepared to give advice concerning the possible presence of the reaction in such cases He has modified the original test by substituting sulphosalicylic acid for the heat and nitric acid when testing for albumin This is important if the amount of albumin is small as the sulphosalicylic acid is a more delicate reagent In a large test tube 5 drams of physiologic salt solution 5 c c of sputum and 5 drops of acetic acid are well shaken for five minutes The mixture when homogeneous is filtered through paper and the filtrate is tested for serum albumin by any of the methods used in the identification of albumin in urine

New York State Journal of Medicine, New York

August XII No 8 pp 411 478

57 Vertigo from Standpoint of General Practitioner C G Stockton Buffalo
58 Ocular Vertigo I Friedenberg New York.
59 Labyrinthine Vertigo P D Kerrison New York
60 Vertigo Due to Middle-Ear Causes. J F McKernon New York
61 Medical Expert Testimony from Lawyer's Standpoint. W A Purrington New York.
62 Medical Expert and Proposed Changes in Law Governing Defense of Insanity in Homicide Cases. A C Brush Brooklyn.
63 Nervous and Mental Symptoms Due to Disturbed Circulation with Illustrative Cases and Treatment I H Stephenson Syracuse
64 Gastric Neurasthenia and Abdominal Ptoses B C Loveland Syracuse
65 Further Immunologic Studies in Chronic Pneumococcus Endocarditis. E C Rosenow Chicago
66 Bismuth Paste Its Uses in Surgery E C Beck Chicago
67 Case of Bismuth Poisoning Employment of Bryant Bull Dog Recovery W C Cramp New York
68 Clinical Vagaries in Some Forms of Liver Disease N F Brill New York
69 Acute and Chronic Congestions of Liver B W Stearns Unadilla
70 *Hyperacidity G R Lockwood New York
71 Plea for Early Diagnosis in Surgical Affections A H Traver Albany
72 Only or Favorite Child in Adult Life A. A Brill New York
73 Toxemia of Pregnancy Treatment W M Brown Rochester
74 Lateral Curvature of Spine W Truslow Brooklyn
75 Cardiac Sequellæ of Tonsillar Infection J R Wiseman Syracuse
76 Alopecia Areata Its Causative Factors and Therapy I I Bechet New York

70 Abstracted in THE JOURNAL May 11 p 1474

Archives of Diagnosis, New York

July V No 3 pp 209 308

77 Uses of Whispered Bronchial Voice M Manges New York
78 *Value of an Antiputrefactive Diet in Differential Diagnosis of Conditions Producing High Blood Pressure I E Cornwall Brooklyn
79 *Fat Heart Aid to Its Early Recognition H Stern New York
80 Clinical Significance of Albumin Reaction in Sputum M Fishberg New York
81 *Modern Methods of Diagnosis M H Fussell Philadelphia
82 Mental Factor in Diagnosis and Treatment of Functional Diseases. B Sidis Portsmouth N H
83 Diagnosis of Gastric and Duodenal Ulcer W G Morgan Washington D C
84 Diagnostic Points in Gastro-Enterology J W Weinstein New York
85 Dilatation of Ascending Colon J M Bell St Joseph Mo
86 Functional Albuminuria from Diagnostic and Prognostic Point of View I I Wolf Kansas City Mo
87 Diagnostic and Prognostic Significance of Leukocytes in Urine C Posner Berlin.
88 "Tis the Little Things That Count B L Arms Boston

78 **Antiputrefactive Diet.**—When we give the antiputrefactive diet in a case with persistent high blood pressure and the tension returns nearly to the normal and stays there Cornwall says we can as a rule exclude any considerable amount of chronic nephritis or arteriosclerosis When the administration of this diet, though it may be followed by great improvement in the other symptoms fails to bring about much reduction of the blood pressure (fails to reduce it to much below 200 mm Hg) we can be reasonably sure that advanced nephritis is present or sclerosis of arteries supplying regions of the body which are of vital importance When the administration of this diet brings about a notable reduction of the blood pressure but still leaves it considerably above the normal, considering the patient's age, we may suspect arteriosclerosis or an early stage of chronic nephritis The light which the antiputrefactive diet throws on the diagnosis of conditions accompanied by high blood pressure makes it very much easier to interpret the other signs and symptoms presented by those conditions, and the administration of this diet is not only valuable as a diagnostic procedure, but it is in general the best treatment for those condition

79 **Fat Heart**—Stern has found a very simple sign not heretofore pointed out as such which he says is almost pathognomonic of fat heart even at a period when other indications of its presence are still wanting This sign in brief is the following Normally the heart sound [illegible] distinctly audible when an individual is in the recumbent or reclining than when in the erect position The increase in loudness and sharpness of the heart [illegible] when standing is especially noticeable at [illegible] the other hand in th [illegible] heart, this increased a

in the upright position (and after moderate exertion) either does not ensue at all or only in an insignificant degree

81 **Modern Methods of Diagnosis**—The albumin reaction of sputum Fussell has found to be a useful test in cases suggestive of pulmonary tuberculosis and often of assistance when the microscope failed to reveal tubercle bacilli A positive albumin reaction, he says, is not always decisive, because many diseases, not at all tuberculous in character, may show albumin in the sputum. A negative reaction, when repeatedly found during several examinations, from specimens of sputum carefully collected, excludes tuberculosis In cases of tuberculosis, in which the albumin reaction was positive but has become negative for some time, we may conclude that the process of cicatrization of the pulmonary lesion is progressing favorably, even when the physical signs are slow in disappearing The albumin reaction has a prognostic value. It gives us an opportunity to follow the progress of the tuberculous process Whenever albumin makes its appearance in a case in which the reaction was negative for some time, there is surely to be found an acute exacerbation, or an extension of the lesion in the lung In pulmonary emphysema a positive albumin reaction appears to be an indication of cardiac dilatation, thus indicating the proper treatment to be pursued

Journal of Missouri State Medical Association, St Louis

August IX No 2 pp 43 72

89 Report of Committee on Cancer Investigation F J Lutz St Louis
90 Cancer Research M Pitzman St Louis.
91 Cancer of Stomach J F Binnie Kansas City
92 Surgical Treatment of Gastric and Duodenal Ulcer W Bartlett St. Louis.
93 *Multiple Primary Carcinoma of Jejunum F W Bailey St. Louis
94 Head Noises or Tinnitus Aurium J S Weaver Kansas City

93 Abstracted in The Journal, July 5, p 59

Virginia Medical Semi Monthly, Richmond

August 9 XVII No 9 pp 209 236

95 Clinical Value of Polygraph P S Roy Washington, D C
96 Inguinal Hernia. L Sexton New Orleans
97 Surgical Shock L H Reichelderfer Washington D C
98 Postpuerperal Conditions Simulating Puerperal Fever G Baughman Richmond
99 Nervous Manifestations of Pelvic Disease W H Smith Goldsboro N C
100 Repair of Relaxed Vaginal Outlet. S N Michaux Richmond
101 Perforation of Uterine Wall with Injury to Intestine Resection of Intestine C S Lawrence Winston Salem N C

Annals of Surgery, Philadelphia

August, LVI No 2 pp 201 376

102 *Value of Direct Gastroduodenoscopy in Affections of Stomach and Duodenum T Rovsing Copenhagen
103 *Conservative Treatment of Giant Cell Sarcoma with Study of Bone Transplantation J C Bloodgood Baltimore.
104 *Radical Operation for Relief of Cancer of Rectum and Rectosigmoid W J Mayo Rochester Minn
105 Nephrectomy A G Gerster New York.
106 Diagnosis of Renal Tuberculosis Indications for Nephrectomy in Its Treatment and Technic of Operation. P M. Pilcher Brooklyn
107 Acute Hematogenous Infection of One Kidney in Person Apparently Well G K Dickinson Jersey City N J
108 Acute Unilateral Infection of Kidney F W Rinkenberger Tacoma Wash
109 Adherent Hernias of Large Intestine J L. Ransohoff Cincinnati.
110 Apparatus for Intratracheal Insufflation H H Janeway New York
111 *Picric Acid as Skin Disinfectant. O W H Mitchell Columbia Mo

102. **Direct Gastroduodenoscopy**—Rovsing asserts that direct gastroduodenoscopy enables us to give the exact diagnosis in cases of disease in the stomach and the duodenum in those difficult cases where all other diagnostic expedients are insufficient. It is of special importance in three directions 1 In the numerous cases where the symptoms speak in favor of ulcus but where inspection and palpation of the stomach show nothing of the sort Here gastrduodenoscopy removes all doubt and sometimes shows us that the supposed ulcer does not exist whereby the patient is spared a senseless and injurious encroachment, and sometimes it proves the presence of the ulcer its seat and its nature 2 For the differential diagnosis between ulcers in the stomach and the duodenum 3 By rendering possible a direct attack on the ulcer, where one had formerly to content oneself with gastro-enterostomy because the seat of the ulcer was unknown This is of exceptional importance with ulcers, the hemorrhages from which constitute a menace to life, whether they be permanently oozing, small bleedings, or violent, acute hemorrhages Nor, naturally, is this method infallible, as with it also one may sometimes overlook a small ulcer which has concealed itself in the folds of the mucous membrane, and may sometimes interpret a depression as being the edge of an ulcer or something similar, but this is of rare occurrence

103 and 104 Abstracted in The Journal, July 27, pp 301 and 302

111 **Picric Acid as Skin Disinfectant.**—Up to the present time the picric acid solutions, in the main 1 per cent alcoholic solutions, have been used in seventy eight cases at the Parker Memorial Hospital When a patient can be prepared over night he has the usual shaving and soap and water scrub, with a saturated watery solution of picric acid applied over the field. Before operation he is washed again with soap and water and the alcoholic solution is applied In cleansing a scalp or sterilizing an infected wound it has been found most efficient and reliable, which is no doubt due to its high germicidal action and its great power of penetrability, as Mitchell has shown by his experiemnts There has been no case of wound infection since the method has been in use The only objection to it is the intense and tenacious staining, and on two occasions when the wound edges were not perfectly coapted there were one or two small points of delayed union due to small coagula of serum between the edges of the wound These coagula were cultured and found to be asolutely sterile This high power of coagulating serum makes it necessary to make close and perfect approximation of wounds and leave no pocket of serum which will be coagulated with a very small quantity of the picric acid and hinder union mechanically The solutions of picric acid can be depended on as germicidal and are recommended by Mitchell for skin disinfection because of this property and the one of penetrability

Journal of Kansas Medical Society, Kansas City

August, XII, No 8, pp 301 340

112 Antituberculosis Fight and Some Field Notes J J Sippy Belle Plaine
113 Rights of a Child J R Scott, Newton Kan
114 Surgical Treatment of Hallux Valgus Associated with Bunion J L. Grove Newton
115 Medical Education Professional and Lay W A Klingberg Elmo
116 Open Treatment of Fractures J T Axtell Newton
117 Use of Calcium Chlorid as Prophylaxis Against Hemorrhage in Typhoid. N E Wilson, Douglas
118 Treatment of Typhoid W C Chaney Independence

Southern Medical Journal, Nashville, Tenn

August, V, No 7 pp 439 510

119 *Eradication of Malaria J H White New Orleans
120 American Society of Tropical Medicine Secretary s Report J M Swan Rochester N Y
121 *Malarial Hot Bed Within Sight of National Capital. T W Jackson Fort Washington Md.
122 *Possible Etiologic Factors in Malarial Recurrences Significance of Such Cases and Their Treatment. G E. Henson Crescent City Fla.
123 Pernicious Malaria with Cerebral Symptoms Resembling Heat Stroke, with Report of Cases B H Booth Drew Miss.
124 Some Side Lines in Tropics I Dyer New Orleans
125 New Treatment of Pellagra with Organo Mineralized Radio-Activated Serum of Dr Jean Nicolaidi Paris France. J Nicolaidi Paris, France.
126 *Clinical Aspects of Pellagra Question C H Lavinder Washington D C
127 Intestinal Parasites of North Mississippi L. Kohlheim Saltillo, Miss.
128 Simple Methods of Differentiating Disease Bearing Insects. C S Ludlow Washington D C
129 Some Fallacies in Laboratory Diagnosis. C Wellman, New Orleans
130 Relation of Rat to Public Health E W Warren Palatka Fla

119 and 121 Abstracted in The Journal, July 27, pp 297 and 299

122 Abstracted in The Journal, December 2, p 1861

126 Abstracted in The Journal, May 11, p 1472.

Medical Record, New York

August 24, LXXXII, No 8, pp 323 368

131 Clinical Recognition of Syphilitics W W Graves, St Louis.
132 Importance of History in Diagnosis of Incipient Tuberculosis. J M. Cruice Philadelphia.

133 Coronary Sclerosis with Special Reference to Gastric Symptoms I W Held, New York
134 Medical Supervision of School Children in South Manchester Conn T G Sloan South Manchester Conn
135 Orgyia Leucostigma Factor in Causation of Ophthalmia Nodosa G W Beatty Brooklyn
136 Phosphoproteins in Diet F Von Oefele New York

FOREIGN

Titles marked with an asterisk (*) are abstracted below Clinical lectures single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest

Glasgow Medical Journal

August, LXXVIII, No 2 pp 81 159

1 Chronic Ovarian Pain as Illustrated in Record of Case Finally Treated by Double Oöphorectomy A W Russell
2 * Tunnel Skin Grafting New Method of Covering Raw Surfaces with Epithelium A MacLennan
3 Successful Removal of Large Retroperitoneal Sarcoma, with Method and Treatment D Duff
4 Primary Carcinoma Arising from Bronchus in Tubercular Lung M McIntyre

2 **"Tunnel" Skin Grafting.**—In many cases of burns the surfaces seem never to be ready for grafting, and so the matter is delayed till by the lapse of time and the applications of very frequent dressings the surface to be covered gets more or less clean It is especially in those unfavorable cases that MacLennan thinks his method is so applicable. The usual measures to get as ideal a surface as possible are not neglected, but too much time should not be allowed to elapse before an attempt is made to get an epithelial covering over the raw surface The steps of his operation are as follows The day previous the skin to be transplanted is washed with soap and nailbrush well soaked with methylated spirit and covered with a dry sterile dressing Before removing the graft the skin is again rubbed with spirit, and dried with sterile gauze The graft may be a mere shaving, or be the entire thickness of the skin. The subcutaneous fat, when the whole skin is taken, is not raised with the graft, and may, or may not, require to be subsequently excised before the wound is closed with a continuous silkworm suture The excised skin should be placed in saline, and the wound closed before the hands, etc., become soiled during manipulation about the septic surface The graft is then cut into little strips a quarter of an inch wide and about three fourths of an inch long The ulcerated surface is then prepared for the graft by tunneling beneath the granulations with a pair of forceps or other suitable instrument The tunnel should be just wide enough to lightly compress the graft, and long enough to cover in the ends If wide strips be employed too much of the granulation layer is raised, and it sloughs too soon, certainly before the graft has taken firm root The depth of the tunnel will depend on the breadth of the strip and on the quality of the granulations The deeper the tunnel the more likely is the graft to become firmly attached before the protecting granulation layer disappears The points of the forceps protruding through the other end of the channel grasp the skin strip, and by withdrawing the forceps the graft is drawn into the tunnel, and there left Bleeding is often profuse, but if the passage be made of the proper size the graft plugs it and inhibits the oozing, if still bleeding a little light pressure will stop it In some vascular parts it is advisable, if possible, to perform the maneuver after the region has been rendered anemic by the Esmarch's bandage The graft comes to lie in a little cell embedded in blood clot, and under the surface protected from contact with the dressing The tension of the superimposed granulations keeps the graft in contact with its bed to which it is intended it shall adhere The graft is pulled into the tunnel, made by a knife or other suitable instrument, when firmly fixed the superimposed bridge of scar tissue is divided After such a plan of grafting the dressings take place irrespective of the grafts, and in this way the ulcerated surface may be kept clean, and septic absorption minimized

Journal of Tropical Medicine and Hygiene, London

August XV No 15 pp 225 240

5 Speculations on Life-History of Schistosomum Hematobium F Milton
6 Mongolian Birth Marks L G Fink

Lancet, London

August 10 II No 4641 pp 351 424

7 Some Points in Decline of Birth Rate and Death Rate Sir S F Murphy
8 *Diagnostic and Prognostic Value of Leukocyte Counts in Cirrhosis of Liver L Rogers
9 Surgical Tuberculosis Its Needs and Treatment H J Gauvain
10 *Mercurial Administration Some Uncommon Methods in Treatment of Syphilis D Freshwater
11 *Vascular Symptoms in Cervical Rib T W Todd
12 Multiple Gummata with Separation of Principal Lobes of Liver J J Jervis and A L Dykes
13 Congenital Absence of Gall Bladder Associated with Imperfect Development of Pancreas and Imperforate Anus H Blakeway
14 Industrial Employment of Married Women Its Influence on Birth Rate and Sex Ratio at Birth H R Jones
15 Neuron H Campbell

8 **Leukocyte Counts in Cirrhosis of Liver**—Rogers has continued his observations on the blood changes in cirrhosis of the liver, and the results confirm and in some respects extend, the conclusion that leukocytosis is common in ordinary cirrhosis of the liver, a high degree being of immediate very bad prognostic significance On the other hand a marked leukopenia is diagnostic of the disease being secondary to kala azar It appears that a relative increase of the white corpuscles is of great immediate prognostic value Five of the nine patients showing an actual leukocytosis died within a short period of time, while in the six patients showing only a relative leukocyte increase four also died while under treatment in hospital Thus, out of a total of fifteen patients showing either an actual or relative leukocytosis no less than nine, or 60 per cent., died within a short time, while the remainder were discharged from hospital "relieved" mostly without any improvement in their condition On the other hand, out of nine cases with no increase in the leukocytes, even of a relative degree, and in which kala azar was not the primary disease, there was only one death, or 11 per cent, the fatality in that case moreover, having been from a complicating bronchitis Even among the eight kala azar cases only two terminated fatally while under observation so that including them there were still only three deaths in hospital, or 17 65 per cent, among seventeen patients with normal or diminished leukocytes As most of these patients were in hospital from one to three months, and some of them showed improvement as a result of medicinal treatment, it is clear Rogers says, that, except in the kala azar cases with marked anemia or daily fever surgical procedures might safely have been adopted in those with recurring ascites after repeated tappings, and who thus did not appear to be likely to completely recover under purely medical treatment On the contrary, several of the patients showing leukocytosis died within a short time of its discovery, although clinically indistinguishable from many of the more favorable cases with normal leukocytes, and had they been operated on only a disappointment would have resulted In seven out of the nine cases in which an actual leukocytosis was found, from 80 to 93 per cent were polynuclears, the two cases showing over 90 per cent being both in a cholemic state which rapidly ended fatally This polynuclear leukocytosis points to a terminal bacterial infection very possibly due to the bacillus coli communis In the kala azar cirrhosis cases a marked degree of anemia was always present, while the proportion of white to red corpuscles was usually reduced to much below the normal figure of about 1 to 666 The occasional absence of a marked relative leukopenia is due to the fact that cirrhosis is a very late complication of kala azar, only ensuing after the patient has suffered from fever for several years and has to some extent become immune to its effects, and partly due to the frequency of dysenteric complications, which tends to increase the leukocytes

10 **Mercurial Administration**—Either the intramuscular injection or the inunction treatment is believed by Freshwater to be by far the most satisfactory way of treating syphilis and least liable to be followed by relapses For the ordinary routine treatment of syphilis he prefers intramuscular injection it is more convenient and cleanly and does not take much time during the day, but in nervous [illegible]

following on late syphilis, e g, tabes, the inunction treatment is as a rule more satisfactory, the results being sometimes marvelous Freshwater says that treatment by the mouth should only be carried out when it is not possible to give injections or inunctions, it is certainly often useful to give mercury by the mouth between the routine courses of injection The intravenous method is better left alone except in very severe cases in which other means have failed, and in acute lesions of the ophthalmic apparatus in which there is danger of loss of sight Treatment by means of the "mask" is the most satisfactory method of introducing the mercury by respiration, it is certainly very suitable as an alternative method to the oral administration, being cleanly, simple to carry out, and effective The same applies to the "mercurial bib," but somewhat better results are obtained with the mask, the bib is very suitable for children. Suppositories offer a good alternative method and may be continued off and on for a long time, they are *par excellence* the simplest method of giving mercury secretly when it is necessary Fumigation is excellent for chronic lesions if used with a simple apparatus, but where it is not possible to carry out this, the application of a mercurial plaster will ofter cause a chronic lesion to heal. Baths are somewhat dangerous and unreliable, but may be employed where a syphilitic lesion is complicated with a parasitic one The mask is a flexible wire contrivance covered with a double layer of gauze, which is impregnated with 8 gm metallic mercury The mask is attached to the face by means of two tapes tied round the head, thus the mask fits over the mouth and nose, and the vaporized mercury is inspired A course of treatment should be continued for six weeks, the mask being worn during sleep A single mask is sufficient for ten days treatment, it is worn in one position for five days, then turned so that the upper portion which has been over the nose is brought over the mouth for the next few days, and is then discarded The bib consists of cotton wool impregnated with an ointment containing 90 per cent mercury These chest protectors or bibs are made double, that is to say, there is a part to go over the chest and one to go over the back, joined with straps which fit over the shoulder They answer very well as a mild mercurial treatment, they should be worn day and night until they show signs of turning white, when they should be discarded and a new one obtained. They can be used over an indefinite period as a mild mercurial course

11 **Vascular Symptoms in "Cervical" Rib**—In the condition known as cervical rib Todd says that any explanation of the vascular phenomena may be found inadequate if it depends only on direct mechanical pressure on the subclavian artery Clinical and anatomic evidence suggest that the vascular symptoms may be trophic in character and caused by a lesion of the sympathetic fibers in the lower part of the brachial plexus Certain anatomic facts indicate that damage may occur to the sympathetic fibers to the arm in the situation where a lesion of the spinal fibers is likely to occur in cases of cervical rib The anatomic disposition of the parts around the subclavian artery as it passes from thorax to axilla indicates that this cannot be the site of injury to the vessel or to sympathetic nerves surrounding it

British Medical Journal, London

August 10 II No 2693 pp 285 344

16 Physics and Biochemistry in Relation to Dermatology W G Smith
17 Acne and Seborrhea Their Causation and Treatment. A Whitfield and R. Sabouraud
18 Sporotrichosis L. de Beurmann
19 *Treatment of Nevi Based on More Than Two Hundred Cases J L. Bunch
20 Types of Dermatitis Seborrheica G G S Stopford Taylor
21 *Rational Method of Treating Syphilis J E R McDonagh
22 Vacuum Electrode in Neurodermitis J G Tomkinson
23 Papilliform Lesions (Lymphangiomata) of Scrotum F C Madden
24 *Chronic and Recurrent Maladies of Skin in Relation to Heart Disease D Walsh
25 Systematic Study of Morbid Conditions of Nails C N Meachen
26 Sebaceous Carcinoma and Its Relation to Rodent Ulcer L. Savatard
27 Fibrosarcoma on Lupus Scar Tissue L. Savatard.
28 Xanthoma Multiplex W C Oram

19 **Treatment of Nevi.**—During the past two years and a half Bunch has treated over 2,000 nevi by solid carbon dioxid, apart from other skin diseases For stellate, capillary, cavernous and flat pigmented nevi, he says, the method is excellent, and gives most satisfactory results For linear nevus and nevus verrucosus, where there is much thickening and warty growth, it is not so good, but these cases are of course, very rare For port wine stains (*taches de feu*) it depends how far the corium and underlying structures are involved, the most unsatisfactory cases are port wine stains with a nodular, irregular surface and warty projections, and for these there is no really satisfactory method of treatment But for the vast majority of nevi, Bunch is convinced there is no more effective, satisfactory and painless remedy, nor one which gives such uniformly good results

21 **Treatment of Syphilis**—McDonald emphasizes the fact that every case must be treated individually, and no laws made as to how many injections this or that stage of the disease requires A patient must be treated as early as possible, and the treatment should not be stopped until the patient is cured A cure can only be said to occur when the Wassermann reaction is negative within a short interval of stopping treatment Finally, the treatment required can be accurately gauged only by making examinations of the blood at frequent intervals after each injection

24 **Skin Diseases in Relation to Heart Disease**—Clinical observation has convinced Walsh that a large number of chronic and recurrent skin eruptions are associated with disease of the heart, and that unsuspected organic heart trouble is comparatively common among patients attending a skin hospital. Prognosis in skin diseases largely depends on the state of the heart, therefore attention to the circulation is imperatively demanded in a large number of skin affections The success or failure of much of skin therapeusis depends on the attention paid to the circulation The circulatory inadequacy which determined the onset and duration of many chronic or recurrent skin eruptions might likewise affect internal organs What is called "idiosyncrasy" might in many cases simply describe a pathologic reaction, natural or acquired, to moderate traumatism In this way the the irregular incidence of trade and of drug eruptions might in many cases be explained, predisposition simply being another name for central cardiac inadequacy and disturbed balance of capillary circulation In all cases of delayed healing or of chronic skin disease the state of the circulation should be carefully investigated When it is proposed to administer any drug, such as mercury or arsenic, known to act as an organic irritant, the possession of a normal or a fully compensated central circulation should be regarded as a *sine qua non* The delayed healing of wounds and the persistence of inflammatory conditions, external or internal often affords a clinical test of cardiac inadequacy more delicate than the shortness of breath, palpitation and other ordinary evidence described in the text books The dermatologist who wished to do justice to himself and his patients would have to keep a constant eye on the heart and its treatment in relation to diseases of the skin

British Journal of Children's Diseases, London

August IX, No 104 pp 337 384

29 Infantilism with Chronic Interstitial Nephritis Report of Two Cases A E Naish
30 Saline Solution in Epidemic Diarrhea J R Mackenzie.
31 Case of Nodular Leukemia G R. Ward
32 Appendicitis in Children A. Mitchell
33 Herpes Zoster by Contagion S Veras.

Presse Médicale, Paris

July 17 XX No 58 pp 605 612

34 Spontaneous Amputation of the Appendix P Delbet
35 Bone Graft After Removal of Bone Tumor (Transplantation libre et tumeurs des os) J de Gouvea

Revue Medicale de la Suisse Romande, Geneva

June XXXII No 6 pp 421 500

36 *Extra Uterine Pregnancy at Term Death from Ileus a Few Days After Extraction of Macerated Child. (Grossesse extra utérine à terme) C Thelin.
37 Mixed Cancer of the Mamma (Les sarco carcinomes du sein) H Perrier

36 **Extra-Uterine Pregnancy at Term**—The young woman had previously had a protracted abortion, but her second pregnancy was apparently normal until the eighth month when symptoms developed suggesting typhoid or peritonitis from an extra-uterine gestation A large macerated fetus was found in a great cavity above the uterus, walled off from the abdominal cavity by a membrane reaching from the abdominal wall near the umbilicus to the rectum The genital organs below seemed to be intact except for a patch of pressure necrosis in the fundus of the uterus Conditions seemed to render a primary abdominal pregnancy most probable

Deutsche Zeitschrift fur Chirurgie, Leipsic

July CXVII Nos 3-4 pp 207-404

38 The Arteries in the Skin (Die Hautarterien des menschlichen Körpers.) F Walcker
39 Treatment of Fracture of the Femur (Zur Behandlung schwieriger Oberschenkelbrüche) Vorschütz
40 Laceration—Fracture of the Lesser Trochanter (Die isolierte Abrissfraktur des Trochanter minor) Vorschütz.
41 *Omentopexy Twelve Cases (Zur Frage der Talma Operation) Goetjes.
42 Gunshot Wounds of the Pancreas (Pankreasschussverletzungen) H Luxembourg
43 Nine Permanent Cures After Resection of the Tongue for Cancer (Einige Dauerheilungen nach Zungenkrebsoperationen Rezidiv oder neue Geschwulst) B Riedel
44 Condition Twenty Nine Years After an Operative Reduction of Dislocation of the Hip-Joint (Jetziger Befund nach I blutiger Reposition einer Luxation spont. coxae vor 29 Jahren.) B Riedel
45 Slow Progressive Destructive Process in an Extremity Four Cases. (Die langsam zur Vernichtung einer Extremität resp des Lebens fortschreitende Zerstörung von Haut und Unterhautzellgewebe) B Riedel
46 Sprain of the Knee with Laceration of Middle Lateral Ligament. (Kniegelenksverstauchung und Abriss des medialen Seitenbandes.) I Ewald
47 Operations to Relieve Pressure on the Brain Eleven Cases (Erfahrungen über die Dekompressiv Trepanation und den Balkenstich nach A von Bramann beim Gehirndruck.) von R Rydigier
48 Gasserectomy Two Cases (Zur Exstirpation des Ganglion Gasseri) von R Rydigier
49 Section of the Posterior Spinal Nerve Roots for Spastic Paralysis Three Cases (Erfahrungen über die Resektion der hinteren Rückenmarkswurzeln bei spastischer Lähmungen) von R. Rydigier
50 Isolated Fracture of the Sella Turcica (Isolierter Abbruch der Türkensattellehne) Siebert
51 Olecranon and Occiput Spurs (Spornbildung) P Esau

41 **Omentopexy**—Goetjes has performed the Talma operation in twelve cases of rebellious ascites In seven of the cases the ascites returned and the patients succumbed after an interval ranging from six weeks to a year or two In the five other cases the results of the operation were excellent In one the cirrhosis was probably of syphilitic origin the patient is still in the best of health after seven years Another patient required occasional tapping for a time and then outgrew the tendency to ascites so that the man now, two years later, is attending regularly to his business as a brewer and restaurant keeper Another patient died after seven months and necropsy revealed a subphrenic abscess Goetjes calls this a tardy operative fatality

Therapeutische Monatshefte, Berlin

July XXVI No 7 pp 469-518

52 *Emphysema of the Lungs. R von den Velden
53 Does Digitalis Act on the Vessels? (Haben therapeutische Digitalisgaben Gefässwirkung?) R Gottlieb (Bemerkungen zu vorstehender Abhandlung) W Heubner
54 Efficacy of Baths and Air Douches in Treatment of Pure Neuroses of the Heart (Zur Diagnose und Behandlung der reinen Herzneurosen) M de la Fuente
55 Propaganda for Reform (Zur Arzneimittelliste Reformbestrebungen in England In Nordamerika Zur Frage des Namenschutzes. Fabrikant und Arzt. Concordia medica) W Heubner

52 **Treatment of Emphysema of the Lung**—Von den Velden remarks that anatomic emphysema of the lung is rarely demonstrable clinically with any exactness but that this to a certain extent, is of no moment The emphysema is not a primary affection but is the result of disturbances in the mechanism of the thorax, either in the innervation controlling respiration or in the bone and cartilage framework of the chest When the respiration is affected by nervous or chemical influences, inspiration is deepened and one inspiration follows so close on another that the slower work of expiration is hindered, particularly as the mechanism controlling expiration is not so strong as that for inspiration Freund has called attention to the importance of rigidity of the upper part of the chest walls as a factor in emphysema, and the causal importance of bronchitis and asthma has long been recognized. Treatment of emphysema should aim to remove the cause by increasing the expiration training in deep abdominal breathing with special emphasis on expulsion of the air It is amazing Velden remarks how little attention is paid to the breathing especially the neglect of the factors for costal respiration The young should be trained to breathe properly as a prophylactic measure against tuberculosis and emphysema The aim is to mobilize the chest and keep it mobile so that the ventilation may be thorough Velden doubts whether mechanical aids are of much account in training people to breathe properly or aid in treatment of emphysema The personal cooperation of the physician in the exercises, a certain psychotherapy are he thinks, far more effectual The mechanical devices confirm the patient in the idea that he does not have to exert volitional control of his breathing which is the vital point in training at first His experience confirms the great benefit from doing these breathing exercises in a full bath in cases of acute overdistention, the ventilation of the lungs proceeds much better under these conditions if the chest walls are not too rigid Chronic bronchitis as a causal factor in emphysema seems to benefit by iodid but it must be given cautiously for fear of toxic action on the thyroid in intermittent courses carefully watching the circulation and metabolism If signs of a special toxic action in the larynx and bronchi become evident it can be arrested by energetic calcium treatment, giving 4 or 5 gm of calcium lactate in the course of the day The methods in vogue to impede inspiration and promote expiration, such as inspiration of compressed air and expiration into rarefied air, Bruns negative pressure respiration, and Kuhn's suction mask, owe their main efficacy to the fact that the patient is thereby trained in regular careful breathing The suction mask has a curative influence on bronchitis by the hyperemia it induces in the bronchial mucosa In some cases the emphysema is evidently the result of disturbances in the heart action alone or supplementing other factors, and heart tonics may be indicated although it must not be forgotten that the suction pump of the organism is not the heart but the thorax Mobilization of the thorax walls and ample ventilation of the lungs may restore the heart action to normal When the venous circulation is defective throwing extra work on the right heart with congestion in the abdominal vessels transient benefit may often be realized by tying off the limbs as a bloodless substitute for venesection This is proving a useful means to influence favorably states of acute weakness of the right and left heart manifesting itself in pulmonary edema Velden has confirmed by extensive animal experimentation the effectual action of this method of retaining the blood in the periphery The heart grew smaller both the arterial and venous blood pressure dropped etc and patients with emphysema disturbances felt relieved as soon as their limbs were thus excluded from the general circulation Fornet has reported similar benefit in congestion from cirrhosis of the liver, and Lilienstein has recently devised what he calls a 'phlebostat' to accomplish this bloodless bloodletting (It was described in THE JOURNAL, March 30 1912 p 982) Velden consequently commends this measure as a simple and harmless means to relieve extra strain on the venous heart It can be applied with any simple constricting band or tourniquet to both arms and legs at the same time applying the constriction so as to arrest the venous circulation but without interfering with the arterial circulation By this means it is possible to drain as much as a liter of arterial blood into the limbs and hold it there After half an hour the constricting bands are gradually loosened The procedure can be repeated two or three times a day and both objective and subjective benefit be realized He warns that in treating emphysema it is important to distinguish which are the main factors as an operation to mobilize the chest wall will do no good if the chest is already elastic and measures to relieve the heart will fail if the trouble is due to the rigid chest walls

St Petersburger medizinische Zeitschrift

July 14, XXVII, No 13, pp 193 204

56 Internal Causes of Skin Diseases (Innere Ursachen bei Hautkrankheiten) M Hirschberg
57 Banti s Disease (Zur Kasuistik des Morbus Banti) O von Dehn

Wiener klinische Wochenschrift

July 18, XXV No 29 pp 1111 1146

58 Biologic Method for Differentiation of Acid Fast Bacteria II (Ueber Auflösung der Tuberkelbazillen und anderer säure fester Bakterien im Organismus) R Kraus and G Hofer
59 Experimental Mercurial Poisoning (Zur Vergiftung mit Quecksilber) S Skudro
60 Improved Technic for the Meiostagmin Reaction R. Köhler and A Luger
61 Neuritic Complications in Cranial Nerves in Early Stage of Syphilis (Zur Kenntnis der Hirnnervenstörungen im Frühstadium der Syphilis speziell nach Salvarsan) A Zaloziecki and R Frühwald To be concluded in No 30
62 Prophylactic Injection of Oil into the Peritoneum Not Effectual (Kann man durch Oel die Entstehung peritonealer Adhäsionen verhindern?) J Novak

Gazzetta degli Ospedali e delle Cliniche, Milan

July 14 XXXIII No 84 pp 865 880

63 Edema F Bottazzi
64 Pathogenesis of Intraperitoneal Hernia of the Cecum L. Paglieri
65 Trophic Action of the Nervous System (Sull azione trofica del sistema nervoso) A Stefani

Policlinico, Rome

July, XIX, Surgical Section No 7 pp 289 336

66 Pathogenesis of Large Femoral Hernia (Sulla patogenesi delle ernie crurali voluminose con riguardo agli esiti lontani delle peritoniti ed epiploiti del sacco) O Cignozzi
67 Pneumatic Tourniquet (Studio sperimentale e clinico sopra l applicazione di un apparecchio emostatico speciale) E Pomponi

Riforma Medica, Naples

July 13 XXVIII No 28 pp 757 784

68 *Disturbances in the Circulation After Muscular Exertion in the Tuberculous (Perturbamenti circolatorii provocati dal lavoro muscolare nei tubercolosi) E Tedeschi
69 Estimation of Functioning of the Pancreas from Dosage of Amylase in the Feces (Misura della secrezione pan creatica col dosaggio dell amilase fecale) G Libertini

68 **Circulatory Disturbances in the Tuberculous After Muscular Exertion**—Tedeschi applied certain mild physical tests to determine the action of muscular effort on the blood pressure, pulse etc He records the findings in seven healthy persons and then in twenty six tuberculous persons Some of the latter behaved like normal individuals, but in the majority the maximal blood pressure rose and also the minimal, while the pulse rate became faster The tuberculous felt a sense of fatigue much sooner than the controls The phenomena observed in the tuberculous indicate a transient increase in the tonicity of the vessels These unstable and transient changes in the tonicity of the vessels suggest further that the vasomotor system in the tuberculous is subject to abnormal stimulation which may elicit abnormal and exaggerated reactions at times

Hygiea, Stockholm

June LXXIV No 6 pp 625 736

70 Andreas Vesalius E Holmgren
71 *By Effects of Salvarsan (Salvarsanets biverkningar) J Strandberg (Salvarsan och acusticus) N Witt (600 salvarsan) M Moller
72 *Nodding Spasm in Children (Om salaamkramp hos barn—Epilepsia vel eclampsia nutans.) K O af Klercker
73 *Alcohol and the Community (Alkoholen och samhället Betänkande angående de samhällsskadliga inflytanden bruket af rusdrycker medför jämte förslag till systematiska åtgärder för deras bekämpande i Sverige) A Key Aberg and Others.

71 **By Effects of Salvarsan**—Strandberg found evidences of relapses affecting the nervous system in fifteen syphilitics treated with salvarsan 161 of the patients were under observation for only four months, and it is possible that the true number is even larger The acoustic or optic nerves were the ones affected and the symptoms of neuritis subsided under continued salvarsan treatment in some but not in all One of the patients with syphilitic papillitis found his symptoms aggravated under the salvarsan so that after two injections mercury and iodid were substituted Another patient was given elsewhere two intravenous injections of salvarsan with a three weeks' interval Two months later facial paralysis developed and the man of 31 became totally deaf and with impairment of vision from bilateral papillitis No improvement was realized from three weeks of mercurial treatment, with iodid, the Wassermann reaction was negative Strandberg accepts these neurorecurrences as too serious to be lightly dismissed, and says that the question as to the toxic action of salvarsan has not been decided by the evidence accumulated to date

Witt reports nine cases of neuritic complications after salvarsan, affecting the acoustic nerve, and he insists on the necessity for expert examination of the ear before applying salvarsan in treatment If a tendency is found to progressive otitis and catarrh, otosclerosis or acoustic neuritis, or if there is an inherited burden of deafness, he urges careful weighing of the pros and cons before starting a treatment which may localize the relapse in this organ even if it does not exert a toxic action on it

72 **Nodding Spasm in Children.**—Af Klercker reports a typical case of salaam spasm in a little girl between 3 and 4 The nodding spasm had developed at the age of 2 months, without known cause except digestive disturbance, there was no inherited taint At first the symptoms were ordinary convulsions and spasm of the glottis but they gradually assumed the nodding type This gradual onset was observed in a number of the cases He summarizes fifteen others from the literature, and tabulates them for comparison Treatment can only be along the lines as for epilepsy, bromid is the main reliance, and he noted a favorable influence in his case and two other writers have mentioned the same, but Lange and Finkelstein have had a case each in which no benefit was apparent from bromid The ultimate outcome was total idiocy in nearly all the cases on record and this may be anticipated within a few years The earlier the nodding spasm develops, the graver the outlook No case of actual recovery seems to be on record but there may be long intervals of freedom from the spasms and they may in time assume more the character of epileptic seizures No survival beyond 17 is known

73 **Alcohol and the Community**—A committee was appointed by the Swedish Medical Association to study the question of alcohol from the medical sociologic and legislative points of view Their report fills 392 pages and is a valuable practical contribution to the subject It concludes with suggestions for legislative action Three members of the committee report in detail their respective cases of alcoholic psychoses and alcoholism in general, bringing out the factors which led to the habit of liquor drinking as well as the medical aspect of the cases, heredity, etc A classification of habitual drinkers is proposed and the principles outlined for rational solution of the liquor problem

Ugeskrift for Læger, Copenhagen

July 4 LXXIV No 27 pp 987 1016

74 *Summer Diarrhea in Children and Its Treatment (Børnekolerinen og dens Behandling) C E Bloch

74 **Summer Diarrhea in Infants**—Bloch comments on the epidemic of summer diarrhea last year at Copenhagen Notwithstanding the extreme heat, the sickness was comparatively benign only 100 of the infants dying during the month of August although there were over 3,000 sick In his hospital practice he had fifty eight exceptionally severe cases but only six of the infants died, a mortality of 10 per cent He ascribes this favorable outcome to his method of feeding the infants Nothing but water was allowed until the alarming symptoms had subsided, the coma, collapse, high fever and albuminuria, this generally took from one to three days Then he gave the infant the ordinary milk mixture but without the usual 2 per cent of cane sugar, diluting the milk with four parts water, then with three parts, and then two parts This was generally borne by the end of the first day and he kept this up until all signs of intoxication had disappeared and the infant was ready to drink spontaneously Then he returned to the sugar one part milk to two parts barley water The diluted milk without sugar seems to answer the same purpose as albumin milk."

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THE CURRENT PROBLEMS OF PHARMACOLOGY AND THERAPEUTICS *

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CLEVELAND

I appreciate deeply the honor which the Section has conferred on me in selecting me as its chairman. On reflecting how I might express my gratitude by an efficient discharge of the duties of the office, I concluded that the best way would be to select an interesting program and to let the members do the talking. I shall therefore confine my remarks to a brief explanation of the program. In this, we have aimed to reflect the problems which are of current interest in this field of our profession. These problems are partly scientific and partly practical.

The chief scientific problem at the present time is undoubtedly the effective correlation of pharmacology and therapeutics. No one can honestly doubt that the rise of pharmacology or pharmacodynamics — of the scientific experimental investigation of drug action — has played the part of a powerful and predominantly useful ferment in therapeutics. It has not, however, reached the possible maximum of this usefulness. There is still a large field for investigation in scientific pharmacology, but there is also urgent need for pioneer work in applying the results of pharmacology to the problems of the practitioner. This requires not only a willingness to try new things, but also mutual sympathy, understanding and cooperation between clinical and laboratory workers. A number of papers on our program and in our joint symposiums illustrate these various sides of scientific pharmacology and practical therapeutics, and how the two may be rendered mutually helpful. The creation of the Committee on Therapeutic Research, by the Council on Pharmacy and Chemistry of the Association, promises to be a powerful factor in furthering this cooperation and merits the hearty and active support of the members of the Section. Several of the workers who are cooperating with the Committee will present papers and sketch the progress which has been made.

I would emphasize, however, that the progress of therapeutics cannot be delegated to a few investigators. Every member of our profession must participate in his own sphere, if the profession and the public are to obtain the practical benefits. Every practitioner must train himself to learn accurately the nature and effects of remedial measures both by reading and by observation. This should naturally be begun in the medical schools and I am happy to say that there has been great improvement in the teaching of this subject. In one direction, however, there is much room for improvement namely in reducing the number of medicaments which the student is obliged to study. I would not be understood to mean that most of the drugs on the market are useless, but I do believe that in the present stage of our knowledge or ignorance we would be better off if we used fewer drugs and tried to deepen our knowledge of these. I may dismiss this important matter with these few remarks, because it will be fully dealt with by others in one of the symposiums.

The standardization of drugs is another matter which is vital to the progress of therapeutics. Most important at the present moment is probably the progress of Pharmacopeial revision. Professor Remington will report on this officially, and the members will be given reasonable opportunity to ask him reasonable questions. One of the symposiums has been arranged for the discussion of special problems in drug standardization. The same symposium will take up the ever-interesting problem of the relations between pharmacists and physicians, because its proper solution is essential to applying the drug standards.

Another problem which is becoming more urgent is the right solution of the patent and trade-mark puzzle, as applied to drugs. It may be an open question whether the granting of monopoly to the inventors or makers of materia medica products is of more harm or benefit to humanity. But that question is purely academic. The complete suppression of monopoly is not feasible at this time, although I hope that the members of our own profession will continue to adhere to the traditional ethics whose existence has been more than justified by their results. As concerns manufacturers the real problem is the regulation of monopoly, so that the public may benefit to the maximum degree by its desirable features — the encouragement of invention and progress, and so as to reduce to a minimum the undesirable features — the undue prolongation or extension of monopoly which discourages invention and progress, and the excessive financial profits and risks which spoil perspective and thereby hinder judgment. What is the proper solution I for one am not prepared to say, and I am looking to the symposium on this subject for enlightenment. It is, perhaps, easier to judge which ways do *not* lead to a solution, and our Association may at least do good by exerting its influence to close these false passages.

There seems to be a fog over the whole subject and it is not unlikely that the clearing of this fog may suffice to show the right way. I have seen it stated that the real trouble with our laws is their abuse—that they are so involved in technicalities that the victory tends to go to the longest purse, and that many abuses are permitted to stand merely because no one feels sufficiently interested to risk the money needed to fight them to a finish. If this is true, our Association should realize the dut imposed by its influence and resources, and undertake to fight the abuses to a finish, in the interest of the public. But it is essential to know, first of all, what the abuses really are.

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* Chairman's Address before the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session held at Atlantic City June 1912.

Although the greater part of the program happens to be taken up with pharmacotherapy, the equally important field of physical therapeutics has not been entirely neglected. The Section has to thank certain members of the American Roentgen Ray Society, and especially Dr. Clarence Skinner, for the symposium on that subject.

The members of the Section will notice that the program is well filled, and the officers hope that there will be a free discussion of the papers. It will therefore be necessary to limit the speakers to their allotted time, and to expedite business in every way as much as possible.

4327 Superior.

PRESENT STATUS OF THE LAWS RELATING TO PATENTS AND TRADE-MARKS *

M. I. WILBERT, Ph.M.
WASHINGTON, D. C.

Some months ago the Council on Pharmacy and Chemistry appointed a committee to investigate and to report on the abuses connected with the patenting and trade-marking of medicines. This committee presented a preliminary report on the general subject of patents[1] in which attention is directed to some of the complications that will be encountered in any attempt to equitably solve the patent and trade-mark problems as they present themselves at the present time. The committee has also submitted a second report,[2] discussing the reasons why the widely used names for some of the newer remedies should be recognized as being public property and not in any sense proprietary. These two reports are of necessity purely preliminary and as yet no attempt has been made to generalize or to offer specific suggestions other than that the problems involved are well deserving of careful consideration on the part of physicians who are at all interested in promoting the welfare of the nation.

It is generally recognized that there are two sides to all questions and there are perhaps few problems confronting us at the present time regarding which this truism is more applicable than this very question of patent and trade-mark legislation. Theoretically at least, patent laws are designed to advance our knowledge of the useful sciences and arts and thus to benefit the nation, and are based on the principle that, as a matter of equity, the people should not even were it possible, appropriate the ideas of an individual without offering him in return some form of recognition for the benefits that may accrue from a practical application of his ideas.

That this principle was recognized as sound by the originators of our form of government is evidenced by the fact that the Constitution of the United States (Art. 1, Sec. 8) provides that "Congress shall have power . . . to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

In compliance with this provision of the Constitution the federal Congress enacted a patent law in 1790, and the first patent, which happens to have been for a process for making a chemical substance, potassium carbonate, was signed by George Washington, then President of the United States, on July 31 of the same year. The original law was amplified in 1836, somewhat revised in 1870 and consolidated with the revised statutes in 1874, since when it has been in operation substantially unchanged. The trade-mark law now in force is essentially that of 1905, though amended in 1907 and again in 1909. The existing copyright law was approved March 4, 1909, and includes provisions for registering prints and labels.

In compliance with the requirement of the federal Constitution that the exclusive right to writings and discoveries be secured to authors and inventors for limited times, Congress has provided that a patentee, his heirs or assigns, shall have the exclusive right to make, use or vend the discovery throughout the United States and the territories thereof for a term of seventeen years.

The trade-mark laws of the United States provide that a certificate of registration shall remain in force twenty years from its date, except that, in case a trade-mark be previously registered in a foreign country, such certificate shall cease to be in force on the day on which the trade-mark ceases to be protected in such foreign country, and shall in no case remain in force more than twenty years, unless renewed.

The law respecting copyright provides that any person entitled thereto, shall have the exclusive control of such right, which shall endure for twenty-eight years from the date of first publication and may be renewed for a further term of twenty-eight years.

During recent years there have been numerous suggestions looking to more or less radical changes in our patent laws and much has been written by inventors, patent attorneys and others who should at least be well informed on the subject, regarding the why of the proposed changes. That there is little or no unanimity in regard to the course to be pursued is evidenced by the differences of opinion that have recently been elicited in hearings before the committee on patents of the House of Representatives on H. R. 23417, "A bill to codify, revise and amend the laws relating to patents" and by the committee reports and articles published in the journals of the American Chemical Society.[3]

A careful perusal of the comments that have been made in print and otherwise suggests that many if not all of the contributors to the discussion appear to be in favor of retaining the essential features of the present laws unchanged. It has been asserted that our patent laws, although not perfect, are generally considered to be models of good patent legislation and that they have been followed more or less extensively in compiling the laws and practices of foreign countries.

It is generally acknowledged that our American laws were conceived in a broad and fair spirit and that they essentially involve a contract between the nation and an individual providing on the one hand that the author or inventor disclose the progress that he has made and thus enable others to get acquainted with his work and to improve thereon, while the nation, on the other hand, assumes to assure to the individual, for a period of years, the absolute control of his publication or the sole use of his invention, thus virtually securing to the inventor a monopoly on the article or articles involved. Recent court decisions, notably the one in the now famous A. B. Dick Co. case, clearly establish the right of the

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

[1] The Journal A. M. A., Sept. 2, 1911, p. 780.

[2] The Journal A. M. A., April 27, 1912, p. 1298.

[3] Jour. Ind. Eng. Chem., 1912, iv, 318.

owner of a patent to dispose of his product in any way that he may see fit Along this same line the point has also been made that nobody is compelled to buy a patented product and that the public at large is at liberty to confine its purchases to unpatented products if it so chooses

In connection with medicine and medicines this one feature of our patent laws constitutes one of the gravest dangers so far as the possibilities of abuse are concerned The establishing of a monopoly permits an excessive profit and this extra profit is a natural inducement to the manufacturer or dealer to encourage the use of the article irrespective of whether such use is beneficial or harmful This latter fact has been all too well established and it is generally recognized that many of the more or less potent remedies, particularly hypnotics and sedatives, that have been introduced in this country under the protection of patent and trade-mark laws have in reality proved to be factors for harm and the all too liberal use or the abuse of these remedies has been the direct or indirect cause of many premature deaths

The recent discussions on the desired changes in our patent laws appear to suggest the desirability, if not the imperative need, for a radical change in the now existing legal machinery required to establish the validity of a patent At the present time patent cases may be decided in any one of the nine Circuit Courts of Appeal and each court can give a final decision in a patent case but only so far as that particular circuit is concerned Being independent of each of the other circuit courts its decision need not necessarily be recognized by all or any one of the remaining eight circuit courts and it has been pointed out that an infringer who has been beaten in one circuit can carry on his infringement in the adjacent circuit and drag on new suits forever and a day and thus postpone final decision as long as he is willing to pay for the necessary legal talent and keep the case in court

In the hearings before the Committee on Patents of the House of Representatives referred to above some of the ablest patent attorneys of the country have acknowledged the shortcomings of our present system and have endorsed the frequently made suggestion to establish a court of patent appeals having jurisdiction for all parts of the country, which with common-sense rules of practice would furnish a ready means by which both the inventor and the public could find out whether a patent is valid or not Another reform that has been suggested is a system of preliminary publication of the patent before the final award so that persons directly interested could file their objections much in the same way as is now done in connection with the issuing of trade-mark patents In passing it might be noted that the one feature of the proposed changes in our patent laws to which strenuous objection has been made by manufacturers is the provision requiring that a patented article be manufactured or a patented process carried on in this country within a reasonable period of time or in lieu thereof that the owner of the patent extend a license to any person demanding it Essentially the same feature is included in the patent laws of Great Britain Germany and Holland, and appears to be applicable in practice though it may at times work a hardship on an inventor who is unable to finance and exploit his invention satisfactorily

Our present-day interpretation of the protection that is accorded by our American laws relating to trade-marks has been characterized as particularly vicious in that it tends to restrict competition and to foster a species of perpetual monopoly in the manufacture and sale of articles that are usually of such a nature that they are considered necessities by the average man

One of the most objectionable abuses in connection with trade-marks is due to the fact that the so called trade-mark usually an arbitrarily selected name is not used, as the law intends a mark to be used, to indicate the origin or manufacturer of an article but is in reality used as a generic title for the thing itself and as such would not be recognized in court on any ground but that of unfair competition For instance any one of the many trade names for hexamethylenamin could be used by a physician as a synonym for the official title either by stating the fact or by appending U S P or other designation, but it could not be construed as a synonym by the pharmacist in dispensing the article unless the physician clearly indicates that he is willing to have any make of hexamethylenamin dispensed when ordered by one of the trade-name synonyms This particular feature of trade-mark abuse is well worth careful consideration on the part of physicians who have been misled and are being misled into believing that an article is distinctive or original when it in reality is but a simple mixture of well-known substances or a previously used article rejuvenated by applying to it a new name registered as a trade-mark Such a name has few or none of the elements of a trade-mark and in accordance with established precedent would have no standing in court unless it were clearly shown that its use by others was evidently with fraudulent intent

A more exhaustive discussion of this particular phase of the subject would require more time than can be devoted to it in a review of this kind and for the present I will content myself by briefly recapitulating the essential features of the present day status and needs of the patent laws as they occur to me

The granting of patents, even the granting of patents on medicinal chemicals, is sound in principle and should be of benefit, directly as well as indirectly to the nation

For the protection of the inventor no less than for safeguarding the inherent rights of the public it would appear desirable to simplify the present legal procedure necessary to establish the validity of a patent and also to extend to patents generally the system of preliminary publication now used in connection with the registration of trade-marks

So far as patents on medicinal chemicals may be concerned there appears to be a distinct need for some conservatism in regard to the use of new remedies and physicians should endeavor to discourage the promiscuous use of potent new drugs by the laity thus safeguarding the health as well as the lives of their patients

The legal status of so called trade marks that are in reality but generic titles for well known substances or simple mixtures of such substances should be clearly established by instituting a test case either in court of law or by applying to the Commissioner of Patents for the cancellation of the trade mark registration on one one of the many articles now in use

Twenty Fifth and F Streets N W

An Ideal Portrait of the General Practitioner—The ideal practitioner is he who about to deal with man has appreciated the meaning of man and has fitted himself to meet the varied problems man presents [illegible] who lives clean and acts the golden rule and who leaves in a grateful memory and in [illegible] *[illegible] a re [illegible]* —Meara [illegible]

THE RELATION OF THE PATENT AND TRADE-MARK LAWS TO MATERIA MEDICA NOMENCLATURE *

F E STEWART, PH G, M D
PHILADELPHIA

Manufacturers of materia medica products engaged in the introduction of new products to commerce by advertising are subjected to an enormous expense which, in order to make the investment of capital remunerative, must be met by profit on sales At the present time it costs no less than from fifty to a hundred thousand dollars in advertising before a new product can return a sufficient margin of profit to pay reasonable interest on the investment Every new product introduced means an enormous outlay and a tremendous risk to the manufacturer As this advertising is exclusively confined to the medical press, it means an enormous donation to the medical journals of the country

Under such circumstances, it is not surprising that the manufacturing houses and medical press favor the continuance of materia medica monopoly, although this is contrary to the principles of fraternalism distinguishing the medical profession from the times of Hippocrates

If the system of monopoly of materia medica products is to be continued, it becomes necessary for the medical and pharmaceutic professions and the public to consider the subject seriously, for at the present time the patent and trade-mark laws are being misused for the purpose of protecting such monopolies The subject is so complex in its various ramifications that books might be written without exhausting it, and I am therefore confining my remarks simply to the question of the relation of the patent and trade-mark laws to the materia medica nomenclature By clearing up this phase of the subject, much might be accomplished in removing some of the serious objections applying to the present system

The plan adopted by manufacturers of patented materia medica products is to patent them under their long chemical names and register as trade-marks short and catchy coined names, the object being to monopolize their sales for the seventeen years permitted by the patent law and by controlling their currently used names, to continue the monopoly indefinitely after the patents expire

Now, as the object of the patent law is to promote progress in science and the useful arts by granting to inventors, for limited times, exclusive use of their inventions and discoveries, in exchange for the publication of full knowledge thereof, whereby science may be promoted and the art of their manufacture advanced it is self-evident that a scheme of perpetual monopoly is in direct opposition to the principle on which the patent law is based

Furthermore, the control over the name of a product after the patent for the same expires is an abuse of the trade-mark law, for the function of a trade-mark is to distinguish between brands and thereby promote legitimate competition

Proper standardization of materia medica products requires the adoption of a definite and changeless nomenclature compatible with the science to which the invention pertains and the name should be as descriptive of the product as possible When the descriptive name is long and unwieldy, a shorter name should be adopted for convenience Such names should be free to all who have the right to make the product, and therefore, when the patent expires, should pass with the product to the public This is good law as well as good sense, and has been so decided by the Supreme Court (in the Singer Sewing Machine case in 1895)

Yet the manufacturers, owing to necessity of longer-continued monopoly than the seventeen years permitted by the Patent Office are strongly opposed to relinquishing the control over the names of their products and are doing all in their power to circumnavigate the law As each case must be fought out on its merits, a perpetual monopoly system has been established, which, as before said, defeats the objects both of the patent and trade-mark laws

The remedy seems to be in the hands of the medical and pharmaceutic professions, as represented by the committee for revising the U S Pharmacopeia If the Pharmacopeial Committee would issue an annual report giving a list of all the new products and supplying them with the names conformable with scientific nomenclature, the so-called trade names to be adopted as synonyms this part of the problem could be solved

Take as an example saccharin as listed by th[illegible] which of Merck & Co in "Merck's Index" The p[illegible] foreign benzoylsulphonic imid, or benzosulphinid, or anhydro-orthosulphaminebenzoic acid having expired, the name saccharin, although claimed as a trade-mark, has by the decision of the Supreme Court in the Singer Sewing Machine case become public property Merck & Co, recognizing this fact, listed the product in the index under the name saccharin and then added as synonyms the chemical names and all the trade names under which saccharin is known, as follows

> "Saccharin Merck—Refined
> 'Benzoylsulphonic Imid Garantose, Glusidum, Gluside, Glycophenol, Glycosin, Saccharinol, Saccharinose, Saccharol, Saxin, Sykose, Zuckerin, Glusimide, Agucarina, Toluolsüss, Anhydro orthosulphaminebenzoic Acid, Benzosulphinid (U S P), Neo Saccharin"

What I have said refers to patented products The question will be asked immediately What are you going to do about unpatented products? If the medical profession would live up to its ethical obligations and refuse habitually to employ secret or semisecret medicines, this problem would not be difficult to answer, so far as medicine and pharmacy are concerned For it is a well-known fact in law that any person has a perfect right to manufacture and sell an unpatented product and to offer it under its generic or descriptive name, all claims of the so called proprietary medicine houses to the contrary notwithstanding If the Council on Pharmacy and Chemistry or the Committee for Revising the Pharmacopeia would publish processes for making unpatented products, and adopt correct nomenclature for them, publishing as synonyms the so called trade names, the problem would be solved

In this connection, the following statement made in 1890 by the members of the House Committee on Patents, Hon Benjamin Butterworth, chairman, is of interest

> 1 The registration of an alleged trade-mark does not make it valid Registration is merely to give notice that the thing registered is claimed as a trade mark The validity of the claim can only be settled by the courts
>
> 2 The use of a trade mark in no wise restricts the free use by others of the article of merchandise to which it is affixed It confers on the user no privilege to the exclusive use of an invention of the kind conferred by the patent law, otherwise

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty Third Annual Session held at Atlantic City June 1912

we should have the anomaly of laws diametrically opposing one another The patent law grants the inventor the exclusive use of his invention for a limited time, and then only on the publication of exact knowledge of the invention (accompanying his application for patent) whereby the public may manufacture it when the patent expires The use of a trade mark on the contrary, is unlimited in duration, and no publication of the invention is required when it is used on the same

3 The public has a perfect right to manufacture and sell any article of commerce not patented, and to do so under its proper or generic name, whether a trade mark is used in connection with the article or not For this reason the courts hold that names describing the articles cannot be used as trade marks on the articles they describe Otherwise the use of trade marks would be a hindrance to competition, while the proper use of trade-marks promotes competition by distinguishing between one brand of an article and another brand of the same article, thus stimulating manufacturers to improvement in processes and methods of manufacture for the purpose of excelling each other in producing a better quality of the same articles or at a lower price

4 While not constituting itself an interpreter of law, the House Committee on Patents, as individuals, does not hesitate to affirm the position above described, and so instruct the associated press reporter present

The following quotation from Browne on trade-marks is pertinent under the circumstances

> The policy that the mere use of a name to designate an article would give to those employing it the exclusive right to designate such article by such name, would be giving a copyright of the most odious kind, without reference to the utility of the application or the length of the title, and one that would be perpetual Neither the trade mark law, nor the copyright law, nor the patent law, affords any such right or under the pretense of the same, allows any one to throttle trade under the alleged sanction of law

The following quotation from the decision of the Supreme Court in the Singer Sewing Machine case, is also of interest

> The result, then, of the American, the English and the French doctrine universally upheld is this, that where, during the life of a monopoly created by a patent, a name, whether it be arbitrary or be that of the inventor, has become, by his consent, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monopoly which the patent created Where another avails himself of this public dedication to make the machine and use the generic designation, he can do so in all forms, with the fullest liberty, by affixing such names to the machines, by referring to it in advertisements and by other means subject, however, to the condition that the name must be so used as not to deprive others of their rights or to deceive the public, and therefore that the name must be accompanied with such indications that the thing manufactured is the work of the one making it, as will unmistakably inform the public of that fact.

In this connection, the argument of the appellant in the case of Clinton E Worden & Co *vs* California Fig Syrup Company in the Supreme Court of the United States, October Term, 1901, is of importance as showing to what extent the courts have supported the statement made in this paper that descriptive names cannot be trade-marks The following is quoted from the argument referred to

> The words "syrup of figs" or 'fig syrup" as applied to the medicine in question are either descriptive or deceptive, and in neither event can they be appropriated as a trade-mark
>
> Section 991 of the Civil Code of California regulates the adoption of words and symbols as trade marks and provides that no words can be adopted as a valid trade mark which relate only to the name quality or description of the thing or business or place where the thing is produced or the business is carried on" This is merely the common law rule as to trade-marks, and finds support in Choynski *vs* Cohen 39 Cal 501, Burke *vs* Cassin, 45 Cal 467 and Schmidt *vs* Brieg 100 Cal 673
>
> The leading case in this court is Canal Co *vs* Clark, 13 Wall 311 where the rule is stated as follows
>
> "Nor can a general name or a name merely descriptive of an article of trade of its qualities ingredients or characteristics be employed as a trade mark and the exclusive use of it entitled to protection"
>
> As illustrating the extent to which this rule has been carried it will be interesting to note the subjoining list of words which have been held descriptive
>
> Iron Bitters Brown *vs* Meyer 139 U S 540
> Sarsaparilla and Iron Schmidt *vs* Brieg 100 Cal 673
> Aromatic Schiedam Schnaps Burke *vs* Cassin 45 Cal 467
> Desiccated Codfish Town *vs* Stetson 5 Abb. Pr (N S) 218
> Antiquarian Book Store Choynski *vs* Cohen 39 Cal 501
> Ferro-Phosphorated Elixir of Calisaya Bark Caswell *vs* Davis 58 N Y 223
> Cherry Pectoral Ayer *vs* Rushton Codd Dig 220
> Tasteless Drugs In re Dick & Co 9 O G 538
> Burgess Essence of Anchovies Burgess *vs* Burgess 3 De G M & G 896.
> Balm of a Thousand Flowers Fetridge *vs* Wells 4 Abb Pr 144
> Club-House Gin Corwin *vs* Daly 7 Bos 222
> Extract of Night Blooming Cereus Thalon *vs* Wright 3 Phila 464
> Liebig's Extract of Meat Meat Co *vs* Hanbury 17 L T N S 298
> Bees Wax Oil In re Hathaway Com Dec 71 p 97
> Invisible Face Powder In re Palmer Com Dec 71 p 289
> Razor Steel In re Roberts Com Dec 71 p 100
> Mammoth Wardrobe Gray *vs* Koch 2 Mich N P 119
> Parson's Purgative Pills In re Johnson Co 2 O G 315
> Crack Proof India Rubber In re Goodyear Rubber Co 11 O G 1062
> Croup Tincture In re Roach 10 O G 333
> Cough Remedy Gilman *vs* Hunnewell 122 Mass 139
> Iron Stone Water Pipes In re Rader & Co 13 O G 596
> Nourishing Stout Raggett *vs* Findlater L R 17 Eq 29
> Angostura Bitters Siegert *vs* Findlater 7 Ch Div 801
> Julienne Soup Godillot *vs* Hazard 49 How Pr 5
> Paraffine Oil Young *vs* Macrae 9 Jur N S 322
> Lackawanna Coal Canal Co *vs* Clark 13 Wall 311
> American Sardines In re Sardine Co 2 O G 495
> Straight Cut Ginter *vs* Kinney T Co 12 Fed R 782
> Homeopathic Specifics Medicine Co *vs* Wenz, 14 Fed R 250
> Cramp Cure L H Harris *vs* Stucky 46 Fed R 624
>
> An application of this doctrine to the facts in hand will show that the words 'syrup of figs" and fig syrup' cannot lawfully be appropriated as a trade-mark
>
> 'The name of a secret preparation may be used by anyone for goods actually prepared according to the recipe for they are the goods indicated by the name whether prepared by the original inventor of the recipe or his successors in business or not Until the secret is discovered or betrayed the goods of the original inventor or his successors can be the only goods to which the name is applicable or which are denoted by it but when other people can make them the difficult question of fact arises, whether the name is merely that of the goods themselves or that of the goods of the kind prepared or sold by the original inventor or his successors in business This was well put by Fry J in the Angostura Bitters Case[1] I cannot say the learned judge said 'that Meinhard may not if he can make a bitter identical with the plaintiffs' and if he does I cannot prevent him from selling it as Angostura Bitters' It is to be observed that the person who produces a new article and is the sole maker of it has the greatest difficulty (if it is not an impossibility) in claiming the name of that article as his own because until somebody else produces the same article there is nothing to distinguish it from No distinction can arise from using the name of the class so long as the class consists of only one species, for then the name of the species and the name of the class will be the same'[2]
>
> "There must be some word or sign or device other than a generic name and words of descriptive quality"[3]
>
> 'So the words Night Blooming Cereus' were held to be invalid as a mark being the proper descriptive appellation of the article "[4]
>
> The same rule defeated the adoption of the word Desiccated Codfish"[5]

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[1] Siegert *vs* Findlater 7 C D p 811

[2] Kerly D M The Law of Trade Marks Sweet and Maxwell 1894

[3] Commissioner's decision 1881 p 7

[4] Thalon *vs* Wright 3 Phila 464

[5] Harris [illegible] & Co

In the case of the "Balm of a Thousand Flowers," Judge Duer of New York, says

It is only the seductive name that they claim as their exclusive property, and doubtless from the experience in its value in the extension of their sales, this, however, is a species of property which in my opinion is unknown to the law, and that can only be given to one by an infringement of the rights of all It has been repeatedly held that a trade mark cannot be obtained in a name where it is the proper name for the article as in the case of Schnapps, the subject of the controversy in Wolf *vs* Goulard, or where it has by general use become the proper name of an article which all manufacturers may use as in the case of Dr Johnson's Yellow Ointment, Godfrey's Cordial, and Essence of Anchovies "

'Neither the trade mark law, nor the copyright law, nor the patent law affords any such right, or, under the pretense of the same, allows anyone to throttle trade under the alleged sanction of law "

"No one can claim protection for the exclusive use of trade marks or trade names which would practically give him a monopoly in the sale of any goods other than those produced or made by himself If he could, the public would be injured rather than protected, for competition would be destroyed Nor can a generic name or a name merely descriptive of an article of trade, of its qualities, ingredients, or characteristics, be employed as a trade mark, and the exclusive use of it be entitled to protection "[6]

"We of course understand that when a name is coined by one who *uses it as a trade mark* on a particular article, if that name is originally a lawful trade mark, its subsequent adoption by the public as a common appellative cannot take away the right already acquired "[7]

But "When an article is made that was theretofore unknown, it must be christened with a name by which it can be recognized and dealt in and the name thus given it becomes public property, and all who deal in the article have a right to designate it by the name by which alone it is recognizable "[8]

"A word which is the name of an article, or indicates its quality, cannot be so appropriated Every one has the right to manufacture the same article, and to call it by its name or descriptive character "[9]

As stated in Circular No 19, issued by the Librarian of Congress, "the copyright laws contain no provision under which protection can be obtained on a *mere name or title* Entry cannot, therefore, be made in the copyright office for coined names, names of articles of manufacture, names of games or puzzles, names of substances, names of products or names of medicines "

To sum up Standardization of drugs is closely related to the present patent and trade-mark laws The monopolies that depend for their existence on the protection of these laws, and the conditions that have been created by the large amounts of money which reach the medical press from the advertising of monopolized products, are serious impediments to the progress of standardization

The first step in standardization is the selection of a name by which the drug is to be known and dealt in For obvious reasons this name should be as descriptive as possible and in the case of a drug generally known by a trade name that name should be employed either as the generic name or a synonym That there can be no legitimate objection to this plan is conclusively shown by the fact that the text-books are all adopting it, and in the quotations of legal opinions given herewith, the important fact is fully established that a trade name or brand name when used as the name of a product cannot be a trade-mark and should not be subject to monopoly

I hope that the Section on Pharmacology and Therapeutics, working in cooperation with the Council on Pharmacy and Chemistry of the American Medical Association, will consider the subject and carry out the suggestion I have made for solving the problem of nomenclature relating to the newer materia medica in the manner above stated, namely, the suggestion that the pharmacopeial revision committee issue an annual list of new drugs giving proper names to them and including "trade" names as synonyms

412 South Eighteenth Street

ABSTRACT OF DISCUSSION

ON PAPERS OF DR STEWART AND MR WILBERT

Dr S Solis Cohen, Philadelphia I have listened to many discussions That is about as far as we have gone All that the medical profession has to do is to refuse to use those drugs which are not handled conformably to the ethical standards of the profession We are not dealing with the ideal condition—"ought to be"—but with the practical condition—'is " I can only repeat my published views as to an acceptable compromise between idealism and hard fact Let us recognize the ethical right of chemists to patent the processes of manufacture of therapeutic chemicals, but nothing further The substance itself should not be the subject of a patent, the name should not be privately owned Once it is introduced into medicine, drug and name must be the common property of the profession subject only to limited process patent Further, we should try to establish an international body for the determination of pharmaceutic names for new substances and tender to manufacturers and importers in the United States this *quid pro quo* that if they will consent merely to patent the process, as indeed is now the law in Germany, and not to demand a patent on the product, and will, further, adopt the name given by this international committee as a free name not trade marked, not registered, not protected in any other way than by the general laws of the country covering substitution, adulteration fraud and the like—if they will do that then, on our part we will admit into our Pharmacopeia their products of which the process only is patented, if we deem the substance of sufficient worth and importance That seems to me the only solution to this question No matter what arguments may be made before congressional committees or elsewhere concerning the patent question in general, let us put the prevention of infringement and establishment of the validity of patents aside and confine ourselves to the one clear issue Let us make a concerted effort to amend the laws of the United States on that point so that here as in Germany no chemist shall hereafter obtain a patent on any product intended for use in medicine or property right in the name of such a product The process of manufacture may be patented, the substance and the name must be free to the world That is the one step requiring legislation The other step, which merely requires concerted action on the part of scientific bodies here and abroad—products of which the process only is patented and of which the name shall be that which is given by an international scientific body—may, when worthy, be admitted to Pharmacopeias

Dr Torald Sollmann, Cleveland Dr Cohen's suggestion to cure the whole evil by refraining from the use of these substances reminds me of a method proposed to reduce the high cost of food that is, for all humanity to abstain from eating for a month The practical suggestions are such as the Section should carefully consider to determine the best line of attack I think no one questions that if Dr Cohen's proposition is a feasible one it would solve the whole problem

Mr M I Wilbert Washington D C I would like to see a test case under the present trade mark law If an association such as this would take such a case before the Commissioner of Patents or one of the circuit courts, any one of the names that are being used ostensibly as trade marks but in reality as generic titles, could be declared null and void and one case would settle all of them I think that the sooner such a thing is done the better it would be for American medicine, as it would compel manufacturers to use as they should, a genuine valid trade mark to distinguish their products from other products of the same kind

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[6] Canal Co vs Clark 13 Wall 323.

[7] Celluloid Co vs Cellointe Co 32 Fed. Rep. 94

[8] Leclanche Battery Co vs Western Elec Co 23 Fed Rep 277

[9] Phalon vs Wright Am Tr Cas 308

PROF H P HYNSON, Baltimore I think that Dr Cohen's suggestion, that the medical profession be asked not to encourage something which they believe to be altogether wrong, is the most practical I believe that the profession is generally opposed to the unethical handling of drugs, but they are not united in their action

PROF W A PUCKNER, Chicago Three or four years ago I was present at a consultation of members of the Committee on Patents and Trade Marks of the American Medical Association and legal authorities It seemed the general impression at that time that it would be impossible to amend the patent law to prohibit product patents Under our law, it was stated, it would be exceedingly difficult for the patentee to secure the rights granted in a process patent. Further it was thought that it would be most difficult, if not impossible, to amend the law so that process patents only would be recognized

DR. F E STEWART, Philadelphia When I was chairman of the Committee on Legislation of the American Pharmaceutical Association, it was urged by the representatives of the German chemical houses that a law similar to the German process patent law could never be passed and enforced in this country, as it would be unconstitutional In Germany the burden of proof is thrown on the person who infringes on a patent In this country," say the objectors, every man is considered innocent until he is proved guilty, and it is impossible for a patentee to prove that his patent is being infringed unless the patent covers the product as well as the process He has no right to send an inquisitor into the laboratory of his competitor to determine whether the process used by his competitor is an infringement or not" In the report of our committee we suggested that if the government should conclude to limit patents to processes only, the burden of proof might be thrown on those claiming to have invented new processes for producing the same products by compelling the inventors of alleged new processes to divulge them by applying for patents so that the novelty in each case might be determined by the Patent Office President Taft, in a recent message to Congress following the decision of the Supreme Court of the United States, handed down March 12 1912, urged that the procedure under the patent laws be simplified and that the burden of proving the invalidity of a patent be placed on him who would infringe on it It is not likely that the President, who is a very able constitutional lawyer would make this request if such a law would be unconstitutional

DR S SOLIS COHEN, Philadelphia It might be well in presenting this question before the House of Delegates or Board of Trustees to request manufacturers and importers to act in cooperation with the American Medical Association concerning this necessary legislation That at all events would separate the sheep from the goats and tell us who are reputable manufacturers desiring the advancement of medicine and pharmacy and who are merely despoilers of the sick

[Several motions and amendments were made, the outcome of which was that the Section's delegate was instructed to lay the matter before the House of Delegates with the request that the House attempt to secure legislation forbidding patents on materia medica articles and permitting patents only on processes of manufacture The House referred the matter to the Council on Health and Public Instruction]

Factors in the Production of Abnormality—The infections which arise in the first years of life and especially the inflammations of the gastro intestinal tract, the result of unsuitable alimentation during the lactational period, are the most important factors in determining the majority of cerebropathies, and in this way a crowd of idiots imbeciles and epileptics is produced who encumber asylums and are an enormous drain on the internal economy of the country — Lugaro in "Modern Problems in Psychiatry"

THE INFLUENCE OF PATHOLOGIC CONDITIONS ON THE ACTION OF DRUGS *

GEORGE B WALLACE MD
NEW YORK

There is no doubt that much confusion has resulted in the past years from the attempt to transfer the results of pharmacologic experiments directly to the practice of therapeutics The pharmacologist by repeated experiments and careful analysis of his results obtains facts and reaches conclusions which appear to be beyond contradiction Yet when the clinician, applying the knowledge so acquired, arrives at results at variance to those of the pharmacologist, he is at a loss to understand the seeming discrepancy and very naturally views the laboratory work with some skepticism

The main difficulty lies in the assumptions drawn from pharmacologic experiments These as a rule are carried out on normal animals *the drugs are given* usually in large dosage and in such a manner that they quickly reach the tissue to be acted on If the exact conditions of the experiments are defined and if the work is carefully done, then the results obtained stand as facts which may be confidently expected in all experimental or clinical studies carried out under similar conditions But, in clinical cases, the conditions are rarely those of the laboratory experiment Often it is true, a drug is employed in therapeutics for the purpose of acting on a function or tissue not in itself abnormal, and of affecting indirectly through this action the primary pathologic state, as, for example, purgatives in dropsy In such instances the pharmacologic knowledge of the drug can be applied directly, the action differs in no wise from that seen in an experiment on a normal animal But in many other cases, the action to be elicited is a direct one on the diseased tissue itself, and the conditions may vary considerably *from those of the animal experiment* It is unlikely, even here, that the actions are different in kind from those in normal animals They may differ markedly, however, in intensity and ultimate effect Most of the vital organ functions are complex ones in that they involve a number of factors which normally work in *harmonious* equilibrium *In disease* one may become predominant, another may cease to exert influence

In the mechanism of diuresis for instance, there are to be considered a permeable membrane, vessels capable of a certain degree of constriction and dilatation, a volume of blood of *fairly definite concentration* A diuretic may affect any one of these factors with a common result and their relationship one to another remains but little changed If a pathologic condition arises however, for example, affecting the power of the vessels to dilate, the resulting effect of the diuretic—that is diuresis—*may* be greatly increased over the normal, or may be entirely absent And yet no new type or kind of action has occurred The difference in the result means simply that one factor has responded more actively or less actively to the drug than is the case normally

It is obvious then that the results of drug action in *normal animals are often incomplete so far as a direct* therapeutic application is concerned and that they must be supplemented by experiments in which the conditions obtaining in disease are reproduced

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty-Third Annual Session, held at Atlantic City [illegible]

In studying these differences in action in pathologic conditions it is by no means necessary to rely wholly on animal experimentation Many of the most important facts in therapeutics have been brought to light by accurate clinical observation It is rare, however, that an ultimate analysis of these facts can be obtained at the bedside The work of Cushny on the therapeutics of digitalis, which is an example of what may be accomplished clinically, was made possible chiefly by his thorough understanding of correlated laboratory experiments Where it is possible to produce a pathologic condition such as exists clinically, then undoubtedly the study of drug effects becomes far more accurate, easy and rapid But the final proof must eventually be obtained by clinical application

It is out of the question here to cite more than a very few instances of the differences in drug action referred to But these, I trust, will emphasize the importance of the subject First, there may be considered such relatively simple phenomena as abnormal absorption and excretion

It is well known that a dilated and atonic stomach, with greatly delayed emptying power, is of fairly common occurrence Very few drugs are absorbed by the stomach and the time required for them to enter the circulation is dependent largely on the quickness with which they reach the intestine A slow passage from the stomach to the intestinal absorbing surface not only delays the onset of action of a drug, but also lessens the intensity of action For the dosage assigned to any drug presumes that it shall exist in the circulation in a definite concentration

Again, it is a known clinical fact that in cases of ascites, especially that from liver cirrhosis, drugs such as diuretics may have little or no effect Experiments performed many years ago have shown that the toxicity of certain drugs given by the stomach is greatly lessened if the abdominal cavity contains a large amount of fluid hen the fluid is withdrawn, the toxic action comes on ckly The effect of the fluid is to prevent the drug ing taken up by the circulation

With regard to excretion, it has been shown that curare, a drug ordinarily producing no symptoms when given by the mouth because of its rapid elimination, may produce death if its passage of excretion, the kidney, is blocked According to Meltzer and Lucas,[1] magnesium sulphate given subcutaneously to nephrectomized animals induces complete narcosis, although in the same dosage it is entirely without this action in normal animals In this connection, a paper by Boos[2] reporting a number of cases of magnesium sulphate poisoning in man is of interest, since it is not improbable that impaired renal function was a factor in several of his cases

Finally, some interesting work by McCrudden[3] on excretion may be mentioned It is a wide-spread custom among the laity to treat snake bites by the internal administration of alcohol, or such intestinal irritants as senega Alt has shown that the poisons from certain snakes are excreted in part, at least, by the gastro-intestinal tract McCrudden, working with morphin, was able to show that the excretion of this drug by the intestine was greatly increased if intestinal irritants, such as rum, quillaja and senega, were given Probably this effect on morphin excretion applies to all substances excreted by the intestine, and, if so, may be an explanation of the benefits derived from elaterium in uremia

A pathologic decrease in the volume of blood may influence the action of drugs Thus, experimentally, after a severe hemorrhage, a dose of strychnin which ordinarily would produce at most only a slight increase in reflex irritability may bring on typical convulsions These disappear when the withdrawn blood is reinjected, so that the stronger effect is due to the greater concentration of the poison It is quite possible that this experimental fact may at times be of practical importance Wiggers[4] has shown that a number of drugs lose certain of their characteristic actions after hemorrhage The vagus-center loses irritability, so that slowing of the heart no longer occurs after epinephrin or digitalis

The difference in action of drugs on the central nervous system is generally only one of degree of effectiveness Thus, it is well known that when certain types of pain exist, these may be relieved by doses of morphin too small to induce any effect in a normal individual Similar effects are seen in the influence of morphin on cough In these cases, the action consists in reducing the excessive irritability of a brain center to its normal level The antipyretics lower a normal temperature only when given in dangerous dosage, whereas, when fever is present, a decided fall may be obtained by relatively small doses

The most popular field at present for experimental work along these lines is the circulation Pharmacology has done its full share in explaining the action of drugs on the normal circulation Therapeutics, however, has advanced comparatively little The action of strychnin for example, has been worked out in great detail Its effects in therapeutics are a matter of controversy among clinicians In normal animals, strychnin fails to elevate the blood-pressure appreciably, unless given in doses which may be considered above the therapeutic limit Experiments carried out in my laboratory, in which a pathologically low blood-pressure had been induced by such varying procedures as shock, hemorrhage, diphtheria toxin, nitrites and chloral, have shown that the drug is effective only in cases in which a low blood-pressure is brought about by a partial depression of the vasomotor center, such as may be produced experimentally by chloral This is what might reasonably be anticipated, since the action of the drug consists in increasing the irritability of this center and so making it more responsive to outside stimulation A careful study of the records of clinical cases improved by strychnin would undoubtedly show that these cases are ones in which a depressed vasomotor center was the operating factor

With regard to the action of drugs which lower blood-pressure, it has been shown that their effect in abnormally high pressure is in general not especially different from that in the normal[6] The action is somewhat later in coming on and is more prolonged, due probably to a slower absorption, but the percentage fall of blood-pressure is quite comparable to that in a normal animal Cases have been reported in which no fall occurred after the nitrites, but as yet no explanation of this lack of effect has been given

The difference in the result of drug action on the normal and on the diseased heart is quite striking For example, in a normal animal, digitalis produces a distinct cardiac slowing, with an increase in both systole and diastole In cardiac incompensation, with a normal rhythm, Cushny[7] found a slowing in only 30 per cent of the cases studied by him Apparently, the vagus-center has either lost its irritability or else no longer exerts a controlling effect on the heart-rate It is well known that fever lessens the response of the vagus-center to drug stimulation, and, as has been mentioned, anemia of the center by hemorrhage and probably by insufficient circulation through cardiac weakness has a similar effect In arhythmias present in animals, digitalis often completely restores the rhythm to its normal sequence In arhythmias in man from auricular fibrillation, it also brings about improvement, and here a typical slowing almost invariably occurs

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[1] Meltzer and Lucas Jour Exper Med., 1907 ix 298

[2] Boos Magnesium Poisoning A Study of Ten Cases The Journal A M A Dec 10 1910 p. 2037

[3] McCrudden Arch f. exper Path. u. Pharmakol. 1910 lx ii 274

[4] Wiggers Jour Pharm and Exper Therap 1911 ii 305

[6] Wallace and Ringer The Journal A. M A. Nov 13 1909

Experimental evidence shows, further, that the strengthening effect of digitalis on the contractions of a weakened heart is much more marked than on a normal heart Similarly, camphor, which has an uncertain effect on a normal heart, acts as a strong stimulant to one weakened by chloral Again, the increase in diastole occurring in a normal heart from digitalis gives place to a lessened diastole in a dilated heart

Finally, the rise in blood-pressure seen in normal animals after digitalis may be replaced by a fall in cases of cardiac incompensation[8] The explanation given for this unexpected result is that with a deficient circulation a condition of asphyxia occurs which induces a strong vascular constriction With improvement of circulation, the asphyxia lessens and the vessels accordingly dilate

A considerable amount of work has been done lately to determine the effect of pathologic states of the kidney on the efficiency of diuretics In normal animals a diuresis can practically always be obtained from the administration of one of the caffein group or of sodium chlorid It occurs to a slight effect or not at all, from digitalis In many cases of nephritis, all of these drugs produce a diuresis of much greater degree than occurs in normal animals In other cases however, no diuresis at all follows Here is a seeming contradiction between a pharmacologic experiment and clinical experience which without further knowledge is difficult of interpretation An analysis of the pharmacologic action of diuretics has shown that accompanying diuresis there is a quite evident enlargement of the kidney-volume due to a dilatation of its vessels, and the conclusion has been drawn, for the caffein group at least that the vascular dilatation is responsible for the diuresis

Experimentally, two types of nephritis may be induced one a glomerular type, which may be induced by cantharides in which the vessels are involved to such an extent that they have lost the power of further dilatation, the other a tubular type, caused by such irritants as chromates and uranium, in which a vascular involvement becomes marked only in the later stages In the glomerular nephritis, all of the commonly used diuretics, caffein, digitalis, sodium chlorid, are without effect in increasing the flow of urine[9] In the later stages of tubular nephritis the same lack of effect occurs One of the necessary factors in the diuresis the capability for vascular dilatation, has been removed from the influence of drug action In the early stages of tubular nephritis, on the other hand all of the diuretics mentioned are effective The vascular factor has become more active than normally, in that the vessels are hyper-susceptible, a greater dilatation occurs than in a healthy kidney and consequently a greater diuresis results

One more example may be given In a non-pregnant cat, epinephrin produces an inhibitory effect on uterine movement Given to a pregnant animal, epinephrin, instead of inhibiting uterine movement, promotes strong contraction[10] Apparently, the difference depends on an altered condition of the uterine muscle which renders it more susceptible to the motor and less to the inhibitory impulses coming through the sympathetic nerves

I have given only a few examples of the effects of pathologic conditions on drug action The experimental field is a large and comparatively new one It is a fitting corollary to the usual pharmacologic experimentation and is the one step needed to bring pharmacology and therapeutics into their proper relationship[11]

338 East Twenty Sixth Street

ABSTRACT OF DISCUSSION

Dr. S Solis Cohen, Philadelphia Many laboratory contributions, valuable as they are which have been based on experiments with normal animals under normal or abnormal conditions, are inapplicable and even misleading at the bedside Pharmacologic observations can be made scientifically at the bedside if not as well as in the laboratory yet within their limits as precisely For example, there is a fruitful series of researches which can be carried out without risk to the patient, in studying the effect of remedies on the blood pressure in certain cases of infection and especially in pneumonia Since Gibson called attention to the prognostic and therapeutic importance of the ratio between blood pressure and pulse frequency in pneumonia, I have been using various pressor agents in the treatment of cases of pneumonia and many interesting differences in their action from that attributed to them on the basis of pharmacologic experiment can be made out Not only that, but the difference in different patients is sometimes quite marked, also the differences in the same patient at different stages of the pathologic processes and moreover, according to the other treatment that is used at the same time Here again is another great field of clinical research the association of remedies—the modification of drug influence not alone by disease but by other therapeutic measures instituted before or after or in conjunction with the drug under study I have for example found the intramuscular injection of quinin and urea hydrochlorid most useful in acute lobar pneumonia The fall of temperature it produces is sometimes accompanied with a very marked fall in blood pressure, but this can be averted and the blood pressure made to rise far beyond the level which it occupied before it was disturbed by the use of coincident injections of cocain hydrochlorid Here, too is another modification of the action of a drug by disease I have given by injection—and it has been absorbed—as much as 150 grains (10 gm) of quinin and urea hydrochlorid in twenty four hours, to a pneumonia patient without producing the slightest symptom of cinchonism without tinnitus or deafness, without amaurosis without any irritation of the retina as verified by the ophthalmoscope—in a word without one symptom of quinin intoxication It is quite evident that the condition of the patient has modified very considerably the action of that drug I think it is a chemical neutralization, but the subject is still *sub judice* Now the same condition which modifies the action of quinin in pneumonia—or some other condition—modifies likewise the action of digitalis because if any drug is disappointing as used by the ordinary method in pneumonia it is digitalis

Dr Oliver T Osborne New Haven Conn Physicians for a long while have ridiculed laboratory investigations because such investigations did not meet clinical conditions On the other hand the laboratory men ridicule a great many treatments used empirically because they do not follow the pharmacologic findings Each should respect the other's work the more we understand each other the better we shall understand the true actions of drugs in disease As a general working rule it is a pretty bad plan to give to a patient, who is in a serious condition, an amount of any drug, which we know to be active, and which ordinarily would be considered semitoxic, if not actually toxic In a recent discussion at another meeting there was a question of what would revive a man under certain conditions of spinal anesthesia Previous to the spinal anesthesia there was a morphin and scopolamin injection given, and I objected to the conclusions as to the action of the drugs used for the revival of the patients as it would be hard to tell just what they were combating A surgeon held that it did not make any difference if we gave a toxic dose so long as the man revived, because he was dying any way My answer was that the medical men like to know of what the man died, the surgical men do not care

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[7] Cushny Am Jour Med Sc 1911 cxli 4[illegible]

[8] Meyer and Gottlieb Experimentelle Pharmakologie Ed 2 1911 p 270

[9] Hedinger Deutsch Arch f klin Med 1910 c 305

[10] Cushny Jour Physiol 1906 xxxv 1

[11] An extensive bibliography on this subject is given by Salant Circular No 51 U S Dept of Agriculture Bureau of Chemistry

Dr Egbert Lefevre, New York I think it may be said that a change has taken place in the point of view of both the clinicians and the pharmacologists in regard to the explanation of drug action Clinicians, before the advent of pharmacology, accepted any explanation of drug action that had sufficient authority back of it With the introduction of pharmacology, many of the accepted explanations of drug actions did not square with the laboratory experiments, and clinicians found that it was difficult, if not impossible, to apply to the treatment of patients the data gained by animal experimentation This at first aroused antagonism between the clinician and the pharmacologist As Dr Wallace has said, the pharmacologist is chiefly concerned with the action of drugs on normal physiologic processes I think that we have been asking of the pharmacologist a great deal more than we have a right to ask Clinicians are chiefly concerned with the pathologic physiology and the action of drugs on the altered physiology Dr Wallace has shown how this pathologic physiology disturbs certain drug action, and it emphasizes the necessity for the clinician studying the perverted physiologic processes in his patients and then apply the knowledge gained in the pharmacologic laboratory to correcting these disturbed processes Our attention has been centered too much on the pathologic changes in organs as a result of disease, rather than in the changes that have occurred in the physiologic processes, and our therapeutics have suffered accordingly

Dr Horatio C Wood, Jr, Philadelphia The clinician should bear in mind that pharmacologists alone cannot answer their questions as to what drugs will do in diseased condition It is rare indeed that a pharmacologist has an opportunity like that which Dr Cushny had of studying the action of digitalis in diseased conditions of the heart. The ordinary pharmacologist has little or no clinical material at his command If clinicians wish to improve their drug therapeutics, they must work out their own salvation The pharmacologist, of course can give them suggestions, can give them advice and start them on the way but, after all, the testing of these problems must rest in the hands of the clinician and one reason I believe that more advance has not been made by the body of clinicians is their carelessness in observation and in recording Just recently I read a paper on the value of various methods of treating high arterial tension in which there were long records of the results of various drugs and various physical measures in cases of high arterial tension The reporter in no single instance mentioned the cause of the high arterial tension, nor did he mention the doses in which he employed his drug, and while the paper was suggestive, it was very much injured by what every scientific investigator recognizes as fundamental principles in reporting his experiment Clinicians who have an opportunity of making these studies should report them and report them accurately with the necessary details so that we can draw the necessary deductions

Dr Joseph L Miller Chicago Every physician has felt for a long time that the pharmacologist must be able to apply pharmacology in the laboratory to animals in which the disease has been experimentally produced I should differ somewhat from Dr Wood in saying that the clinician must work out his own salvation It seems to me that the only way is for the pharmacologist and clinician to come together and compare notes not to have the pharmacologist in the laboratory working only with diseased animals, but both the pharmacologist and clinician at the bedside, the pharmacologist with special training on physiologic action of drugs and the clinician, on the other hand, with special training in the diagnosis and ordinary course that the disease takes, by combining these two types of knowledge I believe that we can really make some progress

Dr. William Salant, Washington, D C The literature of this subject has been fully treated in a paper which I published recently in The Journal It is taken for granted by the vast majority of pharmacologists that a drug will behave the same in health and in disease The action of antipyretics and of cardiac stimulants shows that this is not the case In experiments which I performed lately with caffein in pathologic conditions, as after removal of the kidneys, I found that, contrary to expectation, the toxic dose that would be tolerated under this condition—I studied it entirely on rabbits—is slightly greater after the removal of the kidney than it is in the normal animal Furthermore, I found that if smaller doses are given at proper intervals, nephrectomized rabbits can stand about 30 per cent more than they could if the dose was given at a single injection Since one channel of elimination has been removed, when a sufficient amount to make up a toxic dose is given, that animal ought to succumb—but it did not Similar experiments were performed by Dr Meltzer and myself with strychnin We injected into nephrectomized rabbits in divided doses three to four times the fatal amount without causing the death of the animal I think that pharmacologists should devote a great deal more attention to this phase of pharmacologic action than has been done in the past To my mind it is absolutely necessary before we try a drug on the human being that we should study its effect first on the normal animal, and then we should study its action on an animal in which the same condition has been induced as is intended for use in therapeutics

Dr Thomas F Reilly, New York A fact sometimes overlooked is that we jump from normal animals to diseased human beings As long as the treatment of symptoms is all that we can expect from drugs, we must use experimentation, first, on normal animals to find the danger limit and results and then on healthy human beings who are paid or who volunteer for such purpose When we find that an agent produces effect on healthy human beings in the production of a pathophysiologic effect we may expect a similar effect in disease The homeopaths give out their vials among their students and get reports, and really they are on the right basis as far as experimentation is concerned If their reports are colored by imagination that is their fault It would be better to try new remedies on normal human beings and then on patients

CANDY MEDICATION *

BERNARD FANTUS M D
Professor of Materia Medica and Therapeutics and Assistant Professor of Clinical Medicine College of Physicians and Surgeons of Chicago
CHICAGO

Ancient medicine was nasty medicine, the medicine of the future will be pleasant The dawn of the day of pleasant medication is already with us May this contribution, like the song of chanticleer, usher in the sunrise of the new day!

The pill, the capsule and the cachet have fairly well solved the problem of administration of medicines to adults, but the child, for whom pleasant medication is especially necessary, is not helped by these means When one witnesses the struggling of the average child against the average medicine, one cannot but wonder whether at times the struggle does not do more harm

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912

* From the Pharmacologic Laboratory of the College of Physicians and Surgeons of Chicago

than the medicine can do good, and wish that we had other means of administering medicines to children. And many a petted child that has grown up into a sensitive woman who believes she cannot swallow a pill, cannot and will not take medicine. It so happens that just these are excessively fond of candy. Surely, if we could present to them our medicines in the form of perfect candy, it would solve one of the most difficult problems in the administration of medicine. Another use for candy medication is in the treatment of the insane, who frequently will not take medicine but may take it in candy form.

Attempts at candy medication have been numerous enough, but, with few exceptions, have thus far not been successful. The official representatives of medicated candy, the troches, are surely not very popular, and, with the exception of the troches of santonin, they are also surely not very pleasant. No candy medication can be successful that is not a perfect candy. Many times did it happen, in my researches on candy medication, that I had prepared what seemed to me a rather pleasant sort of candy. Friends tasting it would agree that it was not bad. But, when tried on a real child, it was a failure, simply because it had a slight degree of bitterness or of saltiness that would not be objected to by an adult or even by a healthy candy-hungry youngster. But the sick child is critical and suspicious. And it must be admitted that, when we administer medicine in candy form, we are practicing a species of fraud — pious fraud though it be.

Another reason for the failure of the troches is that they do not disintegrate rapidly enough, and a sick child will usually not suck candy as a well child would. The advantage of slow disintegration for throat medication is only then obtainable in those of sensitive palate when the lozenge is perfectly pleasant, such a pleasant lozenge is the slippery elm lozenge, which we have been using with success and pleasure as throat demulcent in cases of sore throat and of cough due to pharyngeal irritation. For all other purposes, candy medication to be successful must not only be perfectly pleasant but must also disintegrate rapidly in the mouth so as not to require sucking or chewing.

Several years ago I took a course of instruction with a candy-maker, in the hope of finding in the confectioner's art some new form of pleasant administration for medicine. I made sulphur taffy and cod-liver oil chocolate creams, but these and a large number of other attempts were unsuccessful. I finally decided, as the result of these studies that the candy form most suitable for purposes of medication was the "fondant." This, however, has the disadvantage of becoming hard with age. Free from this objection, and closely similar to the "fondant" is a rather lightly compressed tablet made of finely powdered cane sugar. And so I came to choose the tablet form as the best and most convenient for candy medication — a form which has already been in successful use for some years for the administration of calomel and of phenolphthalein.

My search has been to devise a perfect candy form for as many different important medicaments as possible, and thus far I have succeeded with about twenty, not including the previously mentioned santonin troches and slippery elm lozenges or the calomel candy tablets or those of phenolphthalein, all of which should, however, be counted as available candy medicines.

Nothing is easier than to produce a candy tablet from a tasteless substance given in very small doses. Thus it is easy to make candy tablets of calomel, of yellow iodid of mercury, of arsenic trioxid, of tartar emetic, of nitroglycerin, of elaterin, of scopolamin (hyoscin). For instance, should 100 tablets of a substance whose dose is to be 1/100 grain, each tablet to weigh 3 grains, be desired, the following formula may be used:

Active ingredient	1 grain
Cacao butter	9 grains
Powdered sugar	290 grains

Talcum not to exceed 3 per cent. may be added to prevent sticking of the tablets to the punches. This addition is not necessary when the tablet contains a considerable amount of insoluble powder.

The ingredients are thoroughly triturated and are then compressed in the tablet machine. The 3 per cent. of cacao butter, as suggested by Schleimer[1] admirably serves the purpose of a cohesive agent for prescription quantities of tablets.

A few drops of solution of carmin, of tincture of curcuma, or of 1 per cent. malachite green may be added, if coloring be desired. The flavor should always be sprayed on the finished tablet by means of an atomizer, for, if the volatile oil be incorporated with the powder, it is liable to impart to the tablet a sharp or bitter taste.

Insoluble substances that are given in larger doses, such as bismuth subnitrate, chalk, magnesia or reduced iron, require at least twice the volume of sugar to keep the insolubility of the powder from being noticeable. In tasting tablets of reduced iron, persons who have gold teeth or metallic fillings in their mouth will notice a "metallic" taste due to the generation of an electric current by contact of dissimilar metals and the liberation of the products of electrolysis. As children's mouths are usually free from metal, the reduced-iron candy tablets are very readily taken by them. The saccharated iron carbonate will be found entirely unobjectionable even by those who have gold in their mouth.

Insoluble substances that have a slight taste, such as tannalbin, phenacetin, digitoxin, are best disguised by the addition of 10 per cent. of powdered cacao to the sugar. Chocolate tablets can usually be compressed without the necessity of adding cacao butter.

The most tasteless form of quinin I have been able to find is aristochin, which is considerably less bitter than euquinin. The slight bitterness of aristochin is almost entirely overcome by the addition of a small amount (2 or 3 per cent.) of sodium bicarbonate and of cacao and sugar in the proportion previously mentioned.

The only sufficiently tasteless salicylate I have been able to find is salophen, which is easily made pleasant by the mere addition of sugar, and, perhaps, better still by the further addition of cacao.

Of soluble substances very few are suitable for candy medication. Sodium bicarbonate, ½ grain to 4 grains of sugar, makes a fairly palatable tablet, especially if flavored with peppermint. Hexamethylenamin, which has a sweetish taste, can be made into a fairly pleasant chocolate tablet.

For the salines I have not been able to devise a perfect candy form. I have therefore selected sabromin and sajodin, which are the most tasteless representatives of bromids and of iodids, respectively, that I know of and which are easily put up in the form of palatable tablets, especially by the use of cacao.

One objection that can be urged against candy tablets is that children might poison themselves by eating too many of them at one time. Th [illegible] objection, which can, however, easily be overcome by prescribing not more tablets than could be taken at one time without danger

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[1] Schleimer A [illegible]

I believe that, in the candy tablet, Dr Robert M Fuller's invention has reached its highest utility I even venture to hope that some day candy tablets may be official in the Pharmacopeia, perhaps instead of the troches The main reason that has been urged against the admission of tablets to the Pharmacopeia was that tablets required complicated machinery and that different triturations require different kinds of treatment — that indeed the tablet machine needs an expert manipulator While this is true, when a large variety of all possible substances that may enter tablets is contemplated, it is not true regarding candy tablets I have shown how simple it is to make them, and now that such cheap and yet practical tablet machines, as the Whitall Tatum Co's and the Stokes Co's are on the market, the expense of the equipment ought not to be deterrent With the aid of these machines, it does not take any more time or trouble to make prescription quantities of tablets than it takes to make as many pills or capsules, and any pharmacist is able to make them

I feel that I have undoubtedly not nearly exhausted the list of medicaments for which perfect candy form is possible, and would be grateful for suggestions of other medicinal agents that might be put up in candy form I also welcome frank criticism of the specimens[1] submitted

Thanks are due to Dr I E Kohn and Mr George N Hiskey for their help in this research

719 Ashland Boulevard

ABSTRACT OF DISCUSSION

Dr C L Craber Cleveland I had a little trouble with my samples of which I have eaten as many as I dare, I notice that they crush in my fingers when I try to handle them The question would naturally arise as to whether they will stand placing in an ordinary pill box or envelope for dispensing Will they deteriorate rapidly when exposed to atmospheric conditions? Have any of these samples a tendency to run together in a warm room, say in a temperature of 90 or 95 F ?

Dr F E Stewart Philadelphia One objection to candy medication was not brought out When I was a small boy I was very fond of apple sauce My father often wanted me to take a Dover's powder and used apple sauce to disguise it, consequently I lost my relish for apple sauce Is not it taking an unfair advantage of the children to use candy as a disguise for medicines so that they will lose one of the joys of life?

Dr. Thomas F Reilly, New York I believe that children associate a round tablet with medicine just as most people do The success of phenolphthalein as a purgative from the drug maker's standpoint is due to the fact that they changed the shape Phenolphthalein preparations are made in various forms The tendency in the past has been to make the tablets too small, if they were made larger I think we could get more flavor in the tablet and less of the disagreeable medicament For many years it has been the custom of homeopaths to carry with them a large number of sugar tablets and when at the patient's home to drop one or two drops of the medicament they intend using on the tablets There is no question that the success of homeopathy is due to pleasant medication The average American child, ruling the house as he does, will not take our medicine the mother will say the child simply will not take the medicine, she reasons that it is better for the child to take the homeopathic medicine rather than take no medicine This is the main reason for the success of the homeopath among children and women The fact that the average American stomach of to day will not stand medicine that could easily be taken a generation ago, has been the cause of a great deal of prejudice against medicine The same thing is true of different races It is impossible to give disagreeable medicine to the Frenchman, whereas you can give a horrible tasting medicine to a German with none but the best results In fact, many of them seem to think that unless the medicine is disagreeable there will be no effect Many of us know that disagreeable medicine will not be taken by our patients and consequently the shelves are full of bottles from which the patient has taken one dose and that is the last of it

Dr Bernard Fantus, Chicago Regarding the imperfections of the specimens presented, I may say that they were made in a hurry and under somewhat unfavorable circumstances and with rather imperfect apparatus I know that some of them are altogether too soft, but this is very easily remedied by merely compressing the tablets somewhat more forcibly As to the shape, I think Dr Reilly's suggestion is a very excellent one As a matter of fact, I tried to get a rectangular punch for the little tablet machine at the College of Physicians and Surgeons and, finding some difficulty in obtaining one, chose the circular form Other shapes would, however, be better than the ordinary tablet form I see no reason, except the manufacturer's convenience, for the use of tablets for any other purpose than as candy medicaments A pill or capsule that any druggist can make is as good as any tablet, except for the purpose of candy medication I have enjoyed the use of candy medication in private pract[illegible] such an extent that I felt urged to present it to the members of the profession I am known among some of my little patients as the "candy doctor" and this is certainly not to my disadvantage

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[1] A collection of specimens may be obtained on request from Dr Bernard Fantus 719 Ashland Blvd Chicago

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PRACTICAL APPLICATION OF THE ROENTGEN RAY TO THE MANAGEMENT OF MALIGNANT GROWTHS *

CLARENCE EDWARD SKINNER, M D
NEW HAVEN, CONN

I shall not go into a technical exposition of this subject but shall restrict myself to an endeavor to show the relation which the *x* ray bears to the treatment of cancer, as indicated by our experience with it revised to date The general practitioner and the surgeon should know what can be accomplished with this force in connection with their cancer cases, but it is, of course, not to be expected that they will apply it personally, hence the subject will be dealt with from a general educational standpoint only

The first step to be taken in such a consideration of the subject should be to prove that the *x*-ray is capable of affording positively valuable aid in the treatment of this disease Strange as it seems to those of us who have worked with the agent for a dozen years, there are still many many practitioners of medicine and surgery who doubt that the *x*-ray is of value in the treatment of cancer I shall therefore report briefly a case which demonstrates, in a striking manner, the curative powers which are claimed for it by the forty or fifty competent roentgenotherapeutists in the United States I have used the term "competent" roentgenotherapeutists intentionally and advisedly Much injustice has been done the *x*-ray in its relation to cancer therapy by the very frequently unsatisfactory results, the many times entire lack of results, and occasionally the positively evil results which have followed attempts at its use by those incompetent to apply it

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912.

The following case was first reported by me to the electrotherapeutic section of the International Electric Congress at St Louis, in September, 1904, and I have selected it for citation because of its conclusive character The clinical diagnosis was made under auspices particularly well calculated to effect conviction The clinical diagnosis was subsequently confirmed by repeated microscopic examinations For ten months before she came under my care the patient was under treatment and observation by one whose statements are entitled to the profoundest respect, and he considered it a hopeless case The progress of the case since has been under observation of this same character and the patient is well to day, eight years after her last treatment

History—The patient was a school teacher, aged 39, on whom hysterectomy and ovariotomy had been done in 1898, for what was supposed to be a fibroid tumor of the uterus, no microscopic examination was made About two and one half years after this operation she noticed a hard tumor in the lower abdominal wall in the region of the cicatrix There was no pain and no discomfort but rapid growth She consulted Dr Maurice H Richardson of Boston, who referred her to Dr W B Coley of New York, for treatment by the erysipelas toxins During the next ten months she was treated with the toxins which caused the growth to decrease in size during the earlier part of this period, but they then lost their power and at the end of this time, in January, 1902, when she was referred to me by Dr C A Bevan of West Haven, the mass measured 10 inches from side to side at the level of the anterior superior spines of the ilia, 8 inches vertically in the median line, and about 5 inches anteroposteriorly in the median line Microscopic examination of sections removed from the tumor while she was under Dr Coley's care demonstrated it to be fibrosarcoma and the mass was rapidly increasing in size The patient was losing flesh, markedly cachectic, very weak, and complained bitterly of pressure symptoms

Treatment—Roentgenization was begun Jan 28, 1902, and during the next four months the patient received forty six applications Her general condition commenced to improve at once but the tumor itself had increased somewhat on the right side, but decreased slightly on the left side, on the whole, the tumor was slightly larger at this time than it had been when we started, and the only feature about the case that encouraged me to continue the treatment was the marked improvement in the general condition

The patient then went to her home in Massachusetts for a short visit and when she returned a decrease of about 20 per cent. in the size of the tumor was noticed, which made it necessary for her to shorten her waist bands and the fronts of her skirts to keep them from dragging on the ground

From June 17 to September 3, a period of two and one half months, she received thirty one roentgenizations Her general health continued to improve, the tumor steadily decreased in size, and at the end of this period she resumed school teaching, which had been interrupted for about a year and a half

Course—To make a long story short, the whole treatment of this case extended over a total period of two years and three months, during which time she received 136 applications of the Roentgen ray, more than half of which were given during the first eight months She received her last roentgenization May 20, 1904, at which time no trace of the tumor was discoverable, nor had it been, according to the testimony of her family physician, for several weeks previously The fact of its disappearance at this time was confirmed by examination by Dr C A Bevan of West Haven Conn and in July by Dr W B Coley of New York so that this patient has been entirely free from any evidence of recurrence for eight years

The fact once established that the *x*-ray is capable of influencing malignant processes favorably its relation to the treatment of cancer may be approached from two points of view, namely, that of malignant processes involving the skin only and of those involving more deeply located structures

CUTANEOUS CANCER

In the vast majority of cases of malignant disease involving the skin only the feeling among roentgenotherapeutists is practically unanimous that the method of election as regards treatment is roentgenization exclusively Thousands of cases have been treated in this country and Europe and I now feel justified in stating that there are at least as few recurrences under this method as under any other if recurrence does occur it usually yields readily to further roentgenization which cannot be stated of other methods the scarring is less than that following other methods and the cosmetic result in such scars as do occur is usually better and the pain following the application of pastes is entirely eliminated, as is also the onus of surgical extirpation which is a bugbear in connection with many patients

The foregoing does not apply to cancer of mucous membrane, however While enough cancers of the tongue, for instance have been cured by roentgenization to demonstrate that the *x*-ray is often also capable of influencing happily and positively malignant processes occurring in this situation yet the method of election here still remains radical extirpation primarily, to be followed by roentgenization

SUBCUTANEOUS CANCER

In more deeply located malignant processes—of which mammary carcinoma constitutes, perhaps the most common type—the exact therapeutic place of roentgenization is still open to discussion The subject may be considered under three heads (1) the employment of the *x*-ray to the exclusion of the knife, (2) preoperative roentgenization, and (3) postoperative roentgenization

Roentgenization Exclusively—Although many cases of deeply located cancer, especially mammary carcinoma have been made to disappear by this treatment and have not recurred after the lapse of many years, yet the contingent risks are such that most of us do not feel justified in advocating it except in carefully selected cases To my mind the most important of these risks is the delay involved By the time the *x*-ray may have demonstrated its inability to control the process in a given case extension of the growth may have cost the patient his chances of being successfully operated on Recent developments, however, give ground for the belief that there may be more to say in this connection in the future

Preoperative Roentgenization—This method is advocated by some roentgenotherapeutists for cases in which the malignant process has extended far enough to render complete extirpation impossible By suppressing the peripheral extensions the case may be transformed from an inoperable into an operable one While this plan is not recommended by many yet excellent results have been reported by trustworthy men and the method cannot be finally passed on at this time

My preference as regards the handling of such cases is to extirpate as much as possible of the malignant tissue, primarily and immediately and then to apply the *x*-ray at once, in the hope that it will take care of what has remained My reasons for advocating this method rather than the preoperative application are as follows

1 Vigorous *x*-radiation of a malignant growth will frequently produce more or less general toxemia and it does not seem logical to me to run the risk of provoking vital depression just before the patient is to undergo an operation

2 Effective radiation of parts c[illegible]ning mal[illegible] tissue causes fibrous tissue to ta[illegible] of [illegible]

nant tissue and frequently results in such a fusion of tissues and obliteration of normal tissue distinctions and relations as seriously to embarrass the operator during the ablative procedure

3 If the ray is capable of influencing happily the total original mass of such a growth it should surely be capable of producing a much greater beneficial influence after the mass has been materially reduced in size by partial extirpation

4 Effectual preoperative radiation involves delaying extirpation for weeks, during which time the neoplasm is constantly threatening further extension It seems to me distinctly inadvisable, to say the least, to subject the patient, by election, to such an ominous risk

Postoperative Roentgenization —Whatever their attitudes as regards the application of the before-mentioned methods of x-ray administration in cancer, I believe I am justified in saying that roentgenotherapeutists are universally agreed that the ray should invariably be thoroughly administered after every operation for cancer, and without waiting for recurrence to manifest itself By thorough administration I mean a course of from twenty-five to thirty roentgenizations lasting from ten to twenty minutes each, this duration to be determined by the type of generating apparatus employed, the time interval between the applications, distance between anode of tube and surface of region to be treated, etc The reasons for taking this radical position are as follows

1 In my opinion, it is not justifiable, in a disease so difficult to manage as cancer, to omit the application of any measure which has demonstrated that it increases our power over the disease

2 It is impossible to tell, at the time of operation, in which cases recurrence is going to take place, hence, in order to be sure that the cases which *will* need it will be treated, it is necessary to apply the measure in every case

3 Early recurrences are frequently internal, hence undiscoverable until such organs and tissues have been involved as to render absolutely useless the application of any remedy at present known

4 Many recurrences are more vicious and resistant to roentgenization than the original lesions

These last two reasons explain why many cases are hopeless under roentgenization, though the patients might have been saved had the remedy been applied immediately after the operation before internal metastasis had occurred, and while the malignant foci were microscopic in size

5 When the x-ray has been thoroughly and skilfully applied immediately after the operation, it is known that everything has been done that offers the patient a chance of recovery, and if the case eventuates unhappily neither physician or patient, nor the patient's family or friends will have cause to reproach themselves for having left undone something which might have altered the outcome had it been applied at the proper moment

Prominent among the objections which have been urged against prompt, routine, postoperative radiation by surgeons general practitioners and patients, are the following

1 Many patients will thereby be subjected to the treatment who would have no recurrence anyway, such patients would be treated unnecessarily

This objection loses its force when we recall that the only way in which we can be sure of treating those cases in which recurrence will take place is by raying *every* case, even though this involves unnecessary treatment in some cases Properly applied x-ray treatments do no harm, even if they are unnecessarily given On the other hand, much harm, in many cases irreparable harm, follows delaying x-radiation until recurrence has manifested itself

2 The expense involved in x-ray treatment is considerable, and it may seem unjustifiable to inflict it on a patient who has not demonstrated that he is going to need it

The desirability of preventing recurrence is so great that the expense involved becomes a negligible factor If recurrence takes place the original operation might just as well not have been performed at all The money spent on any measure which offers a reasonable promise of diminishing the chances of recurrence, then, is as well spent as is that spent on the operation itself

The answer to the first objection applies here also, viz, that by the time the patient has demonstrated that he is going to need the x-ray for recurrence, it will frequently be too late for the procedure to be of use to him, and the saving of his money will have been a profitless procedure

SUMMARY

The subject, then, may be summarized as follows

1 The x-ray has demonstrated that it is capable of exercising a powerfully curative influence over many cases of malignant disease, hence its routine addition to extirpative measures will increase the number of curable cancer cases

2 It is impossible to tell beforehand which cases will need roentgenization and which will not, or which will respond happily and which will not, hence the only way to be sure of treating all cases that will need it and all that will respond is to treat all cases

3 There is reason to believe that many postoperative recurrences are more resistant to the x-ray than the original growth, also it is easier for the x-ray to influence microscopic foci of malignancy than those of larger size, hence roentgenization should be recommended as soon after extirpation as is consistent with the safety of the tissues involved in the operation wound and before recurrence has manifested itself

4 To urge the use of the x-ray, therefore, either alone or in combination with extirpative measures, is imperatively the duty of the medical advisor of a cancer patient

442 Temple Street

ABSTRACT OF DISCUSSION

Dr. George E Pfahler, Philadelphia Roentgen therapy and therapeutic results have not been thoroughly recognized because the work done has not been done generally by men thoroughly competent There are in use to day in America over 20,000 machines Any one who is familiar with the work knows that there are probably not over twenty experts in this country That means one in 1,000 competent to be classed as an expert To become an expert does not simply depend on buying a machine and turning on the switch Men become competent by much hard work, by reading the literature (and there are volumes on this subject), by careful observation and testing and by studying with other men who have established good technic and get good results I have a patient with an osteosarcoma of the fibula which has not been treated for six years She is well, married and raising a family I believe that generally if we have a carcinoma that can be removed fully and completely, it ought to be extirpated at once, but sometimes there are cases which are entirely hopeless from the surgical point of view One patient had a carcinoma which was extending across the chest from one posterior axillary line to the postaxillary line on the other side above the clavicle to down below the costal border, there was an open ulcer the size of my hand I told the patient's husband there was not more than one chance in a thousand I began treatment at his request To day the ulcer is healed, all the evidence of the carcinoma is gone, except in the right breast which had not been amputated, and there it is reduced to one fourth of the original mass The left breast was amputated There was a recurrence which extended back to the spinal column on the left, into the axillary line on the right side To day I can find no evidence and it is only nine months since I started treatment With such results in hopeless cases we are bound to sit up and *take notice I believe every patient,* as soon as able to leave the bed, should have a course of postoperative treatment This reaches the smallest amount of tissue that has to be contended with, including some of the metastases that were there before the surgeon operated If one waits for some visible evidence one will simply have that much more tissue to control I have used the tubes from 6 to 8 inches long and I do not think it makes much difference *what size the tube is The exposure depends on the strength* of the current, the penetration quality of the tube and the distance the tube is from the patient All those factors must be worked out before the length of exposure can be determined Each case is a law unto itself I give from 20 to 60 or 80 milliampères minutes

DR W B SNOW, New York I think the cases cited by Dr Pfahler, in which it was impossible to operate, seem rather to indicate that there are many other cases in which an operative procedure might be omitted Why it should be necessary to operate in every case, if it be possible to obtain the results which he has reported, is a question I have seen many of these cases in the early stages of the process become arrested in their growth I might say, furthermore, that it is impossible unless a section is made to be positive that a tumor of the breast is carcinoma or sarcoma I believe many patients are operated on and breasts removed in which no cancerous growth existed and for that reason unless section is made it seems to me far better to use the ray before anything is done Leduc, the eminent French scientist and *x* ray authority, took the attitude in a recent number of the *Archives of the Roentgen Ray*, that the tumor is not the extent of the carcinomatous growth, that no one knows the limitation of the outlying disease cells, and that to operate is to open up the lymphatic channels for dissemination of the process into other parts The recurrences that have manifested themselves so frequently in very early cases in which nothing has been done by Roentgen postoperative treatment indicate the truth of this statement Leduc went so far as to say that where surgeons were given selected cases for operation and other cases which they rejected were turned over to the Roentgen ray treatment, in *the latter the length of life was far in excess of that in* patients receiving the operative treatment He therefore asserted a great preference for the Roentgen ray treatment When recurrence has taken place following operation there is strong evidence that it would have been better if there had been no operation It a radical operation is done and recurrence takes place extension into the mediastinum is certain to occur I think that each of us has seen numerous cases in which the patients would have lived much longer without operation than they did We as physicians and surgeons in our families shrink from operations The Roentgen ray offers an additional defense, but I believe unquestionably that the preoperative raying is indicated in all cases because it prevents the likelihood of dissemination from the operation Furthermore, I believe that the postoperative ray should also be employed, as Dr Pfahler says as soon as the patient can leave the bed No delay for four or five days is justifiable Further, if preoperative raying has not been done the dissemination which has taken place in the interval might lead to recurrence It is certainly a well established fact from the experience of those who have done scientific work in the past that the Roentgen ray has established itself on a footing which makes it impossible to gainsay its place in the treatment of malignant growths.

DR EDWARD HOLMAN SKINNER, Kansas City, Mo I do not think that *x* ray therapy is on a safe and sane basis We should not pay so much attention to Leduc's article, it lacks in conviction what it exploits in words I have seen many cases of breast cancer and for therapeutic possibilities I use a classification based on the pathologic life history of such neoplasms For instance if a scirrhus carcinoma is thoroughly removed there may never be any recurrence either with or without postoperative irradiation I do not obtain the results which so many claim in cases of medullary carcinoma We should begin to report radiotherapeutic results and failures on a definite pathologic classification No method of therapeutics is established when only a limited number can get good literary results and a large number obtain few actual results

DR ALFRED L GRAY Richmond Va I have always maintained that there should never be any preoperative treatment of an operable cancer of the breast for the following reasons First, the fact that from 80 to 90 per cent of breast tumors are malignant second, there is always a stage in the malignant growth beyond which if it is allowed to continue the end is inevitable, third, if that growth be removed in proper *time we will not have a recurrence* I am in favor of the postoperative treatment of all malignant tumors But I do not think we are ever justified in treating an operable case except skin cancer, with the *x* rays I therefore cannot agree with Dr Snow that many of the patients with breast tumors should not be operated on

DR BYRON C DARLING New York What would be the effect of preoperative treatment over different lengths of time —a week two weeks a month two months? What would be the action of the *x* ray on the tissue? What fibrous condition of the tissues is this treatment apt to produce and of how much embarrassment is it to the surgeon to operate on this fibrous tissue later? Is it detrimental to the after healing of the wound?

DR CLARENCE E SKINNER, New Haven, Conn The embarrassment to the surgeon will depend on the degree of fibrosis which has taken place and the number of the blood vessels and vital organs that are involved in the ramifications of this fibrosis. The interference with the healing will depend on the degree of radiation which has been applied I have seen extensive fibrosis in several cases and some surgeons have complained to me bitterly of the difficulty infused into the operation by this condition Indeed, one surgeon has requested me, when I intend to send a patient to him later for operation, not to irradiate the case until after the operation because of this difficulty There is a practical point involved in some cases

COMPARATIVE STUDIES IN CANCER AND NORMAL TISSUE FERMENTS *

WALTER W HAMBURGER MD

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During the past few years, several investigators have devised a number of new biologic tests for the diagnosis of malignant disease Among these may be mentioned the glycyltryptophan test of Neubauer and Fischer[1] the silk-peptone test of Kuttner and Pulvermacher[2] the amino acid determination of Barlocco[3] and Woodyatt and Jacque[4] and the incoagulable nitrogen estimation of Morris[5] While these several tests differ in minor details they are all based on the supposed activity of proteolytic or peptolytic ferments contained within the cancer cells

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* Read in the Section on Practice of Medicine of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City June 1912

* One of a series of studies from the Morris Institute for Medical Research on proteolytic ferments the others appearing in the Journal of Experimental Medicine 1911 1912

[1] Neubauer and Fischer Deutsch Arch f klin Med [illegible] xcvii [illegible]

[2] Kuttner and Pulvermacher Berl klin Wchnschr 1910 No 47

[3] Barlocco Berl klin Wchnschr 1910 No [illegible]

[4] Woodyatt and Jacque Presented before a meeting of the Department of Medicine Rush Medical College [illegible] 1911

[5] Morris Arch Int Med 1911 viii [illegible]

While in many instances it has seemed that these measures have been of diagnostic value, in others the results have been directly at variance with the clinical and pathologic findings As a result, a wide divergence of opinion has arisen as to their clinical value, some commending them highly, others pronouncing them valueless In the attempts to make these methods more reliable, several modifications have been suggested and new data added, all of which, however, without materially increasing the uniformity of the results

If one examines these clinical reports carefully, one is struck by the meagerness of the facts concerning the ferment itself One searches fruitlessly for exact data concerning the nature of this cancer ferment, regarding its biochemical classification, its relation to substrate and split products, its relation to similar ferments found normally in body cells and body fluids, the influence of external factors, etc In these papers the language employed and the conditions described are clinical, but the phenomenon concerned is biochemical Naturally between the two there is a wide gap of assumption In other words, the effort is made to apply a single biochemical fact to a wide range of clinical problems, without due appreciation of the biochemical principles involved

In view of these facts it was decided to direct this research toward the ferments themselves and to devote the preliminary work toward the development of an adequate biochemical technic, for from the experience gained from a study of the relations of pepsin to so-called antipepsin in this laboratory last year,[6] it was found by use of a carefully controlled technic that true antipepsin could not be demonstrated in animal serum The conclusions reached at that time were as follows

1 Fresh and inactivated animal serum under proper conditions will bind pepsin quantitatively in weak acid solution and will prevent it from digesting protein even after the addition of free hydrochloric acid in excess

2 This binding and inactivation of pepsin cannot be considered as due to a specific antipepsin

3 The phenomenon has been named "pepsin deviation" in analogy with the deviation described for other ferments, notably trypsin

4 The ability of animal serum to deviate pepsin has been responsible for most if not all, of the published accounts of antipepsin

5 By the use of a technic elaborated to control pepsin deviation it has been found impossible to demonstrate normal antipepsin in the blood-serum of the dog, cat, guinea-pig, beef, horse, rabbit and man

THE PROBLEM AS PRESENTED BY THE LITERATURE

Through the work of Muller,[7] Petry,[8] Emerson,[9] Neuberg,[10] Buxton and Shaffer[11] and others, it is now generally accepted that cancer cells contain proteolytic ferments which differ in some fashion from the ferments contained in normal tissue cells Up to most recent time these differences could be summed up under two headings, first, that cancer cells underwent autolysis more rapidly than normal tissue cells, second, that cancer ferments possessed the power of heterolysis or the ability to attack foreign protein, a power never demonstrated in normal cell ferments

Although these assumptions have been vigorously assailed by other investigators (Hess and Saxl,[12] Kepinow,[13] Lieblein,[14] etc), Blumenthal[15] does not hesitate to draw far-reaching conclusions regarding the action of ferments in tumors, asserting that their infiltrative growth and the cachexia which they produce are dependent entirely on the above characters of ferments, as pointed out by Ewing [16]

Most recently, Abderhalden[17] and his associates, from carefully conducted experiments on synthetic polypeptids, concluded that, while cancer cells in many instances split polypeptids and particular peptones the same as normal tissue cells, in others a distinct difference could be determined Thus in the use of the tripeptid *d*-alanyl-glycyl-glycin, the pulp of normal tissues and some tumors split off *d*-alanin, while other carcinomas of man and animals split the tripeptid in an atypical way—liberating *d*-alanyl-glycin, a substance never produced by normal cell ferments Abderhalden believed, therefore that the ferments of some malignant tumors differ in their structure and configuration from the corresponding ferments of normal cells

What constitute the corresponding ferments of normal cells and what facts are known concerning them? Salkowski first called attention to the self-digestion of organs under the term "autolysis" and later through the work of Hofmeister, Muller, Jacoby, etc, it became evident that a whole group of interacting and activating catalytic processes were concerned Although none of these autolytic ferments have been isolated in a pure state, they appear to consist in part of true proteases, ferments capable of hydrolyzing genuine (native) protein, and in part of ereptases, ferments which take up the digestion of the split products of protein digestion —peptones, polypeptids, etc —at the point where protease has left off It is with these latter ferments, the ereptases of normal cells, that the analogous cancer ereptase must be compared, for although both cancer cell and normal tissue cell contain other ferments, it is on these ereptases that the clinical tests referred to have been based, and it is with the comparative study of these ereptases that the present paper is concerned

The nature and characteristics of the ereptases of normal cells have been exhaustively studied by many investigators, and a large number of observations made concerning their specificity, their split products, the influence of reaction and other external factors, their physiologic and pathologic significance, their presence in individual organs, etc A detailed consideration of this work would lead us too far afield For this report it is sufficient to state that they act best in the natural organ juice (*Press Saft*) as soon as a slight acidity has occurred, that they are activated by weak acids 1/12 to 1/130 normal) in particular by lactic acid, that they are inhibited by alkalies (stronger than 0 26 per cent)

SOURCES OF ERROR IN SOME OF THE PUBLISHED REPORTS

From certain preliminary experiments with the juice expressed from cancer and normal tissues, it was thought that the presence of blood or blood-serum which had not been entirely removed might be a factor in the results An inquiry into the literature revealed some interesting facts, that while the earlier investigators had apparently not attempted to remove all blood-serum from the organs, the later ones, recognizing this possible source of error, washed the organs as well as possible with water of salt solution For instance, Salkowski and Petry make no mention of freeing the organs from blood Somewhat later, however, Blumenthal and Wolff mention washing the tumor with water to remove blood-coloring matter, and still more recently Buxton observed that the presence of blood from which the tissues could not be freed by the methods used in animal experiment would always be a disturbing element in the examination of the cell products of tumors, finally, Abderhalden, in the best recent piece of work, washed the tumors with 0.85 per cent sodium chlorid until the wash-water had become colorless

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[6] Hamburger Jour Exper Med 1911 xiv 535
[7] Müller Ztschr f klin Med 1889 xvi 406
[8] Petry Ztschr f phys. Chem 1899 xxvii 398
[9] Emerson Deutsch Arch f klin. Med. 1902 lxxii 415
[10] Neuberg Berl klin Wchnschr 1903 xiii 118
[11] Buxton and Shaffer Jour Med Research 1905, xiii, 543
[12] Hess and Saxl Wien klin Wchnschr 1908 33
[13] Kepinow Ztschr f Krebsforsch 1909 vii 517
[14] Lieblein Ztschr f Krebsforsch 1910 ix 600
[15] Blumenthal and Wolff Med Klin 1905 xi 166 364
[16] Ewing Arch Int Med 1908 i 175
[17] Abderhalden Ztschr f. Krebsforsch 1910, ix 220

While in the later work the organs were washed free from blood-coloring matter, they were not effectually freed from all trace of blood-serum, as will be shown later The importance of thus removing all trace of serum may be judged from the fact that several investigators (Vernon,[18] Delezene and Pozerski,[19] Opie and Barker,[20] Abderhalden and Oppler[21]) have shown that blood-serum contains an ereptic ferment The presence of this serum ereptase in expressed tissue juice might, therefore, account for the ereptic action attributed to the organ, if the latter were not freed entirely from all serum present

THE METHODS USED IN THIS RESEARCH

Tumors obtained as soon as possible under aseptic precautions from the operating or autopsy room were washed free from macroscopic blood with water or Locke's solution The tumor was then divided with a meat-grinding machine, twice the volume of Locke's solution added and the juice filtered through one layer of sterile gauze The filtrate was then centrifugalized and the supernatant fluid poured off for control, while the sediment, consisting of individual cells or small groups of cells, was thoroughly washed three times with Locke's solution, as in the method of washing leukocytes

Normal organs were obtained from rabbits and dogs The dogs were exsanguinated by bleeding from a carotid cannula, while perfusing with Locke's solution through a cannula inserted into the femoral vein After the organs (liver kidneys and spleen) had been removed they were still further washed by a cannula inserted directly into the afferent vessels The organs were then divided, filtered, centrifugalized and washed as with the tumor tissue Blood-serum was obtained from beef, hog, horse, dog and rabbit

Various substrates were used Casein and inactivated beef-serum served as native proteins to test for the presence of protease With the exception of a very slight hydrolysis of casein in one of the tumor-juice experiments no evidence of proteolytic action was found

A 2 per cent Witte's peptone was used to test for ereptase the increase in the production of amino groups, as estimated by the formol titration of Sorensen[22] serving as an index (amino index) The use of peptone as a substrate and the application of the formol method for the quantitative estimation of ereptic action was first suggested by Dr R T Woodyatt, to whom I desire to give credit at this time

Tryptophan was tested for by the drop by drop addition of bromin water to a small quantity of the mixture previously acidified by a few drops of 3 per cent acetic acid

The experiments were performed as follows 10 c c of the organ juice or 0.05 gm washed cell emulsion was added to 50 c c of the peptone solution in an Erlenmeyer flask, 10 c c of the mixture were then removed for control and titrated with tenth-normal sodium hydroxid for total acidity and amino groups, 2 c c toluene were then added to each flask, after which they were placed in the incubator At varying intervals thereafter 10 c c of the flask contents were removed and titrated as before, and the degree of digestion expressed in cubic centimeters of tenth-normal sodium hydroxid per hundred

TABLE 1—EXPERIMENTS WITH THE JUICE OF NORMAL TISSUES

Tissue Juice From	Control		24 hours		7 to 14 Days		Increase in Formol Titration (Amino Index) in		Tryptophan
	Acidity	Formol Titration	Acidity	Formol Titration	Acidity	Formol Titration	24 Hours	7 14 Days	
Kidney	10	12	9	54			42		++++
Liver	11	20	18	51	14	56	31	36	++++
Spleen	10	12	14	32	12	48	20	36	+++
Stomach *fundus mucosa*	10	17	10	36			19		+++
Pyloric mucosa	7	12	7	22	7	42	10	30	+++
Fundus serosa	8	10	7	18	7	48	8	38	++
Pyloric serosa	7	11	6.5	19	6	40	8	30	++

THE NATURE AND CHARACTERISTICS OF THE PROTEOLYTIC ENZYMES FOUND IN THESE TISSUES

In Table 1 are collected the experiments with the juice of normal tissues, the organs being arranged in the order of their ereptase content In this series the organ cells were not washed separately, the organs being merely washed *in toto* and freed from blood coloring matter as much as possible and the expressed tissue juice used The column marked 'control" serves as a basis of comparison of the acidity and the formol titration figures, the succeeding two columns show the increase in the formol titration due to ereptic digestion The explanation of the formol figure in the "control" column lies in the fact that Witte's peptone does not consist solely of peptone, but contains besides a number of free amino groups, as well as proteoses albumoses etc The next two columns show the actual increase in formol titration (amino index) in twenty-four hours and in seven to fourteen days, respectively The last column shows approximately the degree of tryptophan present

In this series as was found constantly kidney ereptase predominates ereptase of liver was less, and of spleen least In the four portions of the stomach, the fundus

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18 Vernon Jour Physiol 1905 32, 33

19 Delezene and Pozerski Compt rend Soc de biol 1903 March 7 May 30

20 Opie and Barker Jour Med Research, 1907 ix 207

21 Abderhalden and Oppler Ztschr phys Chem 1907 liii, 294

22 Sörensen S P L Enzymstudien Biochem Ztschr 1907 1908, vii 45.

mucosa contained most ereptase, while the mucosa throughout contained more than the serosa. It may further be noted that at the end of seven to fourteen days the formol figures for all tissues approached approximately a level, somewhere between 30 and 40, probably because of the fact that at a certain concentration of amino groups, ereptase is inhibited and further ereptic action prevented—an expression of antiferment (anti-ereptic) action.

In Table 2 are grouped the experiments with the juice of tumor tissues.

In this series, the two tumors of the type of carcinoma contained most ereptase, the scirrhus containing less and the sarcoma still less. This is of interest in connection with the results of Abderhalden and Rona,[23] and Hess and Saxl, who found by the use of an entirely different technic that those carcinomas belonging to the group of adenocarcinoma split glycyl-tyrosin similarly to normal tissue, while those composed of connective tissue stroma (scirrhus carcinomas) caused no splitting. It is further of interest to note that from the standpoint of the degree of peptone-splitting, cancer ereptase stands midway between liver and spleen ereptase, so that one could not accept either increase or decrease of catalytic activity as an evidence of ferment specificity. Tryptophan formation was constant in both normal and cancer ereptase experiments and paralleled closely the amino figures. As a general conclusion it appears clear, therefore, that from the standpoint of quantitative amino group and tryptophan formation, as well as from the extent of their production, cancer ereptase and normal tissue ereptase cannot be distinguished.

TABLE 2.—EXPERIMENTS WITH THE JUICE OF TUMOR TISSUES

Tissue	Control		24 Hours		7 to 14 Days		Increase in Formol Titration (Amino Index) in		Tryptophan
	Acidity	Formol Titration	Acidity	Formol Titration	Acidity	Formol Titration	24 Hours	7 14 Days	
Adenocarcinoma breast	7	10	8	37	7	54	27	44	++++
Carcinoma breast	9	10	11	34	8	44	24	34	+++
Scirrhus carcinoma breast	9	13	8	31	15	49.5	18	36.5	+++
Sarcoma tibia	7	9	9	17	8	16	8	7	++

TABLE 3.—SERUMS TESTED FOR EREPTASE

Animal	Control		24 to 48 hours		7 to 14 Days		Increase in Formol Titration (Amino Index) in		Tryptophan
	Acidity	Formol Titration	Acidity	Formol Titration	Acidity	Formol Titration	24 Hours	7 14 Days	
Hog serum	7	13.5	6.5	26	11	33	12.5	19.5	+++
Horse serum	9	13	10.5	23	8	33	10	20	+++
Rabbit serum	8	15	10	26			11		++
Man serum	10	18	12	22	12	32	4	14	+++
Beef serum	13	13	7	18			5		+
Dog serum	8	8.5	8	11	10	20	2.5	11.5	

The presence of an ereptase in blood-serum was demonstrated by use of the same technic as that employed in the series of normal tissue and cancer juice experiments. Table 3 contains the results of a number of serums tested for their ereptase content.

In this series hog- and horse-serum showed the largest content of ereptase, dog- and beef-serum the least. Compared with the ereptase of normal organs and tumors, one may say in general that the ereptase of animal serum appears identical, differing only quantitatively, the serum containing less than the solid tissues. The further observations on serum ereptase, the relation of acids, alkalies and chloroform, and the presence of the ferment in the albumin or globulin fraction of the serum, as well as the results of other observers are not directly related to the present problem and will be reserved for separate publication.

With the demonstration of an apparently similar ereptic ferment in normal organs, tumors and blood-serum, the question arose, Are the ereptases of normal and cancerous tissues to be regarded not as true intracellular ferments, but merely as ferments of the blood-serum which had not been entirely removed by washing? While the earlier experiments suggested that such might be the case, the later tests with more careful washing of separated cells showed conclusively that normal and cancerous cells contain true intracellular ereptases whose activity first becomes evident after autolysis has freed them from the cells. This may readily be seen from the accompanying protocol (Tables 4 and 5) taken from an experiment on some comparative determinations of the ereptases of blood-serum, washed liver and washed kidney cells, all obtained from the same animal (dog) at the same time.

These results show the prompt increase in the formol titration figure by kidney and liver *juice* in fourteen to forty-six hours, contrasted with the slow increase by the *washed* kidney and liver *cells*. It is probable that the presence of more ereptase in the organ juices is responsible for this prompt hydrolysis of peptone and that in the process of dividing and grinding the organ, the ferment is liberated. It seems probable, also, that the slower peptone digestion by the washed cells is due to the fact that the contained intracellular ferments are first liberated and capable of activity when freed from the surrounding cell protoplasm through the slower process of autolysis. These results confirm the relatively small content of ereptase in blood-serum, and finally and most interestingly, they show how by combining washed cells and serum a degree of digestion occurs at the end of 120 hours approximately equal to the maximum degree obtained by organ juice

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[23] Abderhalden and Rona: Ztschr. physiol. Chem., 1907, liii, 308.

In view of the presence of ereptases in normal and malignant tissues and in blood-serum, it would not be surprising to find them distributed elsewhere in the body fluids It may be remembered, in this connection, that Warfield[24] described a peptid-splitting ferment in saliva and in mother's milk In accordance with these facts some preliminary tests with pleuritic and ascitic fluids were made with the result that ereptase could also be demonstrated in these secretions It would appear, therefore, that ereptase has practically a universal distribution not only in normal tissues and fluids, but in pathologic tissues and secretions as well

One may be permitted in closing to speak for a moment of the evident relationship between the ereptase of blood-serum and body fluids and those of the fixed tissue cells and leukocytes In the latter regard Jobling and Strouse[25] in this laboratory showed recently that so-called leukoprotease consists in part, at least, of ereptase It would seem likely, therefore, that although as yet direct experimental proof is wanting, an intimate relationship exists between these ubiquitous peptone-splitting ferments And finally it would also appear likely that future work will show that these tissue ereptases play an important rôle in the body economy, particularly in the mechanism of intermediate metabolism and parenteral protein digestion

TABLE 4—EREPTASES OF BLOOD SERUM AND WASHED KIDNEY CELLS IN DOG

Tissue	Increase in Formol Titration (Amino Index) in		
	14 Hours	46 Hours	120 Hours
Kidney juice (dog)	42	51	51 5
Washed kidney cells (dog)	11	20	70
Dog serum	3	8	16
Washed cells plus serum	20	42	48 5

TABLE 5—EREPTASES OF BLOOD SERUM AND WASHED LIVER CELLS IN DOG

Tissue	Increase in Formol Titration (Amino Index) in		
	14 Hours	46 Hours	120 Hours
Liver juice	22	34	45
Washed liver cells (dog)	7	18	20
Dog serum	3	8	16
Washed cells plus serum	11	20	43

Assuming that the ereptic ferments of cancer and normal tissues cannot be distinguished in their ability to hydrolyze peptone and produce tryptophan, are we to conclude that all tests based on the presence of these ferments are of no clinical value? I believe not, for although the stomach for example, does contain ereptase in common with all other organs the probabilities are that this ereptase is not *secreted* into the stomach contents, at least to any appreciable degree On the other hand, it seems likely that a rapidly growing stomach cancer with its ready tendency to break down, with its ulcerating exuding surface, would discharge its own intracellular ereptase, together with the ereptase derived from the blood-serum, directly into the stomach juices In accordance with this conception a method of procedure as that of Barlocco or of Woodyatt and Jacque, allowing of the quantitative measurement of all the amino groups in the aspirated stomach contents, would be of greater value than the qualitative detection of one single one such as tryptophan For with such a method it would be of little import should a moderate degree of peptone splitting occur from the ereptase of swallowed saliva from the trypsin of regurgitated chyme or from the ferments of blood or bacteria providing that the degree of hydrolysis by the tumor ereptase was definitely in excess

In this regard we should remember that similar quantitative methods are of the greatest clinical value for example, the Widal test in which only the agglutination of typhoid bacilli by highly diluted serums is said to be positive

CONCLUSIONS

1 The *ferments of cancer tissue on which the glycyltryptophan* and less well-known biologic tests are based, belong to the group of ereptases

2 The ereptases of cancer tissue cannot be distinguished in their ability to split peptone and form tryptophan from the ereptases found in normal tissue cells, blood-serum, saliva, mother's milk, pleuritic and ascitic fluids and leukocytes

3 It appears likely that these several ereptases are identical and that the ereptases of blood serum, leukocytes, saliva and other body fluids are derived from the fixed tissue cells

4 Compared quantitatively, most cancer tissues contain less ereptase than normal kidney (dog) and normal liver (dog), although slightly more than normal spleen (dog), and distinctly more than blood serum (various animals)

5 While blood-serum contains relatively less ereptase than most tissues, the last trace of serum must be removed if one wishes to work solely with the tissue ferments To accomplish this, repeated washing of individual cells, with an isotonic solution (after the method of washing leukocytes) has been found to be necessary

I desire to thank Dr Jobling for continued interest and encouragement during the progress of this work

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ABSTRACT OF DISCUSSION

DR. GEDIDE A FRIEDMAN, New York I have heard a paper from the Mayo clinic about the value of the glycyltryptophan test by Dr Smithies a man who had a very large experience with this test His conclusions are practically those that I gave in a paper a year ago although they were based on much smaller material In his cases of gastric cancer the test was positive in only about 33 per cent The tryptophan test was positive in only 7 per cent. of his cases The latter test is an old one, recommended first by Erdmann and Winternitz but very soon disproved by others I believe that so far we have to rely on the history and routine laboratory findings which in the majority of cases enable one to make a diagnosis of gastric cancer

DR. WALTER W HAMBURGER Chicago The qualitative test for tryptophan alone has not much clinical value but it is of some significance in connection w[illegible] ther findings Work on a quantitative met[illegible] determ[illegible] well under way b[illegible] at the present t[illegible]

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[24] Warfield Johns Hopkins Hosp. Bull 1911 xxii, 242 Jour Med Research 1911 xxv 235

[25] Jobling and Strouse To be published in Jour Exper Med September 1912

ACETONURIA

ITS RELATION TO POSTOPERATIVE VOMITING IN SEVEN HUNDRED CASES OF ETHER ANESTHESIA *

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In 1907, a patient on whom I had operated for acute appendicitis with abscess, eighteen hours after operation developed great restlessness, vomiting, convulsions and coma She was treated by injection of normal salt solution by rectum and intravenously, hot packs and stimulation, and fortunately she recovered Although not recognized at the time, the condition was later thought to be due to acid intoxication, but no examination of the urine for acetone or diacetic acid was made About a year later two other cases of this kind occurred among Dr F F Simpson's patients, and in these acetone was present after operation Both of these patients recovered under similar treatment except that sodium bicarbonate was given by bowel Ether was the anesthetic used in all three cases

These cases led Dr Simpson to have the urine examined for acetone and diacetic acid both before and after operation Since this routine examination has been made no further serious cases of acid intoxication have occurred in Dr Simpson's service at the Allegheny General Hospital Much has been written on this subject since that time, and there seems to be some difference of opinion in regard to the significance of postoperative acetonuria For example

Rice[1] in 1908 found acetone in the urine of 90 per cent of 202 cases reported, but in only 10 per cent of these were there any symptoms attributable to it, and at about the same time Wallace and Gillespie[2] reported a very marked decrease in the secondary vomiting when the percentage of acetone cases was diminished

In order to ascertain whether in our experience at the Allegheny General Hospital there is any connection between the ordinary postoperative vomiting and acetonuria this series of cases has been collected It includes about an average of abdominal operations, pelvic operations of all kinds, appendix, gall-bladder, kidney cases and a few plastic and rectal cases Only those cases having a complete record both before and after operation were included This practically limited the cases to abdominal sections as only in these was there an accurate record of the postoperative vomiting Each patient had a special nurse day and night for forty-eight hours after operation

Any patient who vomited at any time during the forty-eight hours was included in the postoperative vomiting class In practically all cases, the ether was given by the open drop method, by Dr W C Maxwell, an expert

The urine was tested usually the day before operation, and after the operation a specimen of the first urine voided was tested and later the complete twenty-four hour specimen In no case was diacetic acid found without acetone and, although not tested for in about 25 per cent of cases, it was thought safe to consider those without acetone negative for diacetic acid also This agrees with the experience of Rice and others

LEGAL'S QUALITATIVE TEST FOR ACETONE

Take 1½ inches of urine in a tube with about 1/15 as much acetic acid Then add about 8 or 10 drops of freshly prepared sodium nitroprussid solution shake well and add ammonium hydroxid. A purple color indicates acetone

QUANTITATIVE TEST FOR ACETONE

Distil 100 c c of urine for about fifteen minutes, allowing the distillate to pass through a cooling box over into a flask containing distilled water Be sure to have end of tube, running from flask of urine through cooling box to flask containing distilled water, immersed Then take the flask of distilled water and distillate and add iodin solution (iodin sol n/10 12 685 c c, KI 25 37 gm, aqua dest q s 1,000 c c) 10, 15 or even up to 50 c c, be guided in amount by the color reaction in qualitative test Then add concentrated sodium hydroxid solution (U S P) until color disappears, followed by concentrated hydrochloric acid until color reappears, then add a few drops of boiled starch as an indicator Then titrate with sodium thiosulphate solution (sodium thiosulphate sol n/10 24 8 c c aqua dest q s 1,000 c c), take reading when blue color disappears, after which multiply the reading by 0 0967 to give amount of acetone in 1,000 c.c of urine

GERHARDT'S DIACETIC ACID TEST

Take 1½ inches of urine plus 10 drops of tincture ferric chlorid, shake and if a reddish brown color is obtained, take another specimen of urine and boil, then again add 10 drops of tincture ferric chlorid and if a yellowish brown color still appears, diacetic acid is positive, if a yellowish brown color, diacetic is negative

VOMITING

In Table 1 is shown the average vomiting in all cases and the influence of acetone, and acetone and diacetic acid both before and after operation

TABLE 1—SHOWING THE VOMITING IN ALL CASES AND THE RELATION TO VOMITING OF ACETONE AND DIACETIC ACID BEFORE AND AFTER OPERATION

	Numbers	Per Cent.	No Vomiting		Vomited		Number of Times Vomiting Occurred	Onset of Vomiting After Anesthesia in Hours	Duration of Vomiting from Anesthesia in Hours.
			Number	Per Cent.	Number	Per Cent.			
Av for all cases.	700		105	15 00	595	85 00	6 44	6 02	27 63
BEFORE OPERATION									
No acetone	588	84 00	90	18 85	498	84 09	6 27	4 85	25 90
Acetone present	100	14 20	15	15 00	85	85 00	6 9	11 1	31 74
Acetone and diacetic acid present	12	1 71	0	0	12	100 00	7 2	4 5	28 5
AFTER OPERATION									
No acetone	151	21 55	32	21 19	119	78 81	5 14	5 91	20 32
Acetone present	392	56 00	51	13 3	341	86 7	6 79	6 05	30 0
Acetone and diacetic acid present	157	22 45	22	14 00	135	86 00	6 7	6 02	25 88

It was found that 85 per cent of all patients vomited at least once, some time during the first forty-eight hours, the average number of times vomiting occurred was 6 44, the onset 6 02 hours, and the duration 27 63 hours after operation

BEFORE OPERATION

In those without acetone the proportion vomiting was practically the same as the average, and the severity but slightly less

Those with acetone present were slightly above the average in all respects but the difference is again not marked. Only twelve of the 700 patients had both acetone and diacetic acid These all vomited after anesthesia, slightly more than the average but the duration was not so great as those with acetone alone These are too few in number to enable us to draw any conclusions

AFTER OPERATION

Acetone or both acetone and diacetic acid were found in 549, or 86 45 per cent, of all cases This practically agrees with the findings of Rice,[1] previously quoted

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty Third Annual Session held at Atlantic City June 1912.

[1] Rice Boston Med. and Surg. Jour clix No 2 p 46

[2] Wallace and Gillespie Lancet London 1908 ii, 1065

In the 21 5 per cent without acetone the vomiting was less frequent than the average, practically 79 per cent as compared with 85 per cent On referring to Table 1 it is seen that the vomiting was less frequent and less severe in those without acetone than in those with acetone or with both acetone and diacetic acid

TABLE 2 —SHOWING THE PERCENTAGE OF POSTOPERATIVE ACETONURIA IN THE NON VOMITING AND VOMITING CASES

•	Total Cases		No Acetone or Diacetic Acid		Acetone		Acetone and Diacetic Acid	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
	700	100	151	21 55	392	56 00	157	22 45
No vomiting	105	15	32	30 48	51	48 57	22	20 95
Vomited	595	85	119	20 00	341	57 31	135	22 69

Table 2 shows the proportion of acetone and diacetic acid after operation among those who did not vomit and those who did Among the former 30 per cent were free from acetone and in the latter, or those who did vomit only 20 per cent were free from acetone This would seem to show that the presence of acetone or of acetone and diacetic acid either before or after operation increased to some extent not only the liability to postoperative vomiting, but also the duration and severity

We were not able to determine any relation between the amount of acetone present and the severity of the vomiting Not all the patients had a quantitative test made One patient with 0 899 gm acetone per 1,000 c c of urine, the greatest amount found, and diacetic acid, also, did not vomit at all

As I have already stated, there were no cases of acid intoxication among those patients In order to determine whether there was any connection between the more severe cases of vomiting and the presence of acetonuria, I collected the cases in which the vomiting lasted more than twenty-four hours after operation This is shown in Table 3 In a total of 285 cases the proportion of those free from acetone is below the average On the other hand in those patients in whom the vomiting began late, in 79, more than twelve hours after operation, those free from acetone were in greater proportion than the average This would seem to indicate that when vomiting does occur it is liable to be more prolonged when acetone is found in the urine

TABLE 3 —SHOWING THE RELATION BETWEEN DURATION OF VOMITING IN PROTRACTED CASES AND ACETONURIA AND ALSO THE RELATION WHEN THE ONSET OF VOMITING IS LATE

	Number	No Acetone or Diacetic Acid		Acetone		Acetone and Diacetic Acid	
		Number	Per Cent	Number	Per Cent	Number	Per Cent
Total	700	151	21 55	392	56 00	157	22 45
Vomiting lasting more than twenty four hours	285	41	14 38	183	64 21	61	21 41
Onset of vomiting more than twelve hours after operation	79	22	27 85	40	50 63	17	21 52

CAUSES OF POSTOPERATIVE ACETONURIA

In order to determine whether there was any relation between the length of anesthesia, or the amount of ether, and the acetonuria, I divided these cases into half hour periods (Table 4) In a general way, there was a gradual increase in the number of cases free from acetone as the length of anesthesia and the amount of ether increased

TABLE 4 —DURATION OF ANESTHESIA IN RELATION TO ACETONE AND DIACETIC ACID *

	Total	No Acetone or Diacetic Acid		Acetone		Diacetic Acid and Acetone	
		Number	Per Cent	Number	Per Cent	Number	Per Cent
All cases	700	151	21 57	392	56 00	157	22 43
30 min or less average 24 5 min 3 4 oz	67	7	10 45	41	61 19	19	28 36
31 to 60 min average 43 4 min 5 57 oz	326	57	17 48	195	59 81	74	22 7
61 to 90 min average 73 5 7 85 oz	189	48	25 39	107	56 61	34	18 5
Over 90 min average 98 6 9 12 oz	36	7	19 44	16	44 44	13	36 11

* Record of anesthesia incomplete in eighty two cases

We are forced, therefore, to look for some cause for acetonuria outside of the anesthetic itself Ewing[3] in 1908 showed that acetone compounds are "derived mainly from the fat tissues and to a less extent from the food " and "that the complete combustion of fats requires the simultaneous katabolism of carbohydrates, in the absence of which there is a defective and possibly abnormal course of fat combustion lodging in the acetone compounds " Frew[4] has more recently emphasized the importance of carbohydrate starvation

In the preparation of patients for operation, it is our custom in Dr Simpson's service at the Allegheny General Hospital to put them on liquid diet for the entire day before operation and this includes practically no carbohydrates, the diet consisting of broths and milk entirely They are also given a purge of castor oil or more recently compound cathartic pills It would seem that possibly this starvation, particularly of carbohydrates, caused a disturbance of the metabolism of the fats with the production of acetonuria

Waugh[5] in the discussion of Frew's paper says that he has abandoned the pre anesthetic purge and restriction of diet He reports over 2,000 chloroform anesthesias in children without a single case of acid intoxication

In order to overcome this carbohydrate starvation for a time glucose was given before operation but no decided difference was noticed in the post operative vomiting The majority of the patients objected strongly to the glucose when given by mouth and it was impossible to give it by rectum on account of the purge, so that this was abandoned

DURATION OF ANESTHESIA IN RELATION TO VOMITING

This is shown in Table 5 There is a gradual increase in the percentage of those who vomited as the duration of anesthesia increases This difference is not great but is definite and uniform and would seem to show that the longer the anesthesia the greater the liability that vomiting will follow it

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[3] Ewing Arch Int Med [illegible]
[4] Frew Proc Royal [illegible]
[5] Waugh Proc Royal [illegible]

TABLE 5—DURATION OF ANESTHESIA IN RELATION TO VOMITING

	Total	No Vomiting		Vomited	
		Number	Per Cent	Number	Per Cent
	700	105	15 00	595	85 00
30 minutes or less	67	13	19 4	54	80 6
31 to 60 minutes	326	47	14 42	279	85 58
61 to 90 minutes	189	22	11 65	167	88 35
Over 90 minutes	36	4	11 11	32	88 89

TREATMENT

As acetonuria seems to be due to carbohydrate starvation it would seem that patients should have this form of food before operation Glucose was not satisfactory and the other forms of carbohydrates have not been tried on account of the liability of forming gas in the intestine In a large proportion of abdominal cases it is necessary to pack off the field of operation and this is impossible unless the intestine is empty

For the acetonuria itself large doses of alkalies, sodium bicarbonate, by bowel, by mouth if possible, or lavage with sodium bicarbonate solution, seems to be rational and in this series of cases has been of undoubted value in many cases

CONCLUSIONS

1 Vomiting occurs in a large percentage of cases after anesthesia

2 The liability to vomiting is increased when acetone is found in the urine

3 Protracted vomiting is best treated by sodium bicarbonate by bowel and by lavage These patients need careful watching on account of the liability of acid intoxication

4 Acetonuria is due to faulty metabolism and increased by carbohydrate starvation

5 Acetonuria has no relation to the length of anesthesia

6 The duration of anesthesia has only a slight influence on vomiting

I want to express to Dr F F Simpson my appreciation of his kindness in permitting me to review these cases, the great majority of which were his, only a few of them being my own the laboratory work was done under his direction

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ABSTRACT OF DISCUSSION

DR. JOHN M SWAN, Rochester, N Y The conclusions reached by Dr Chalfant seem to me to point to disturbed metabolism as the cause of the acetonuria after anesthesia It would be interesting if Dr Chalfant could tell us whether the patients who had acetonuria after operation were the same ones who showed an increase in acetone *before operation* I am inclined to think that such a study would show that the patients with excess of acetone before operation would have an excess afterward, and that the vomiting would be *more* troublesome in such cases than in patients with no acetonuria before operation and little afterward. The method by which Dr Sutter determined the amount of acetone in the urine of the patients just referred to is as follows The twenty four hour specimen was measured and 250 c c were distilled until the distillate amounted to 50 or 70 c.c, which would represent all the acetone in that urine The distillate was put into a graduated cylinder and treated with Lugol's solution three times the ordinary strength The iodoform produced by the action of Lugol's solution on the acetone in the distillate was dissolved with ether The total amount of ethereal extract was measured and 10 c.c *of* that extract were evaporated to dryness in a weighed glass dish From the weight of the iodoform in the 10 c c of ethereal extract the amount in the entire ethereal extract was calculated, and this was expressed as acetone

DR S A CHALFANT, Pittsburgh Of the patients who had acetonuria before operation, the proportion not vomiting is shown to be 15 per cent, which is the same as the 15 per cent of all cases, so that the influence of acetone before operation did not seem to be very important

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TREATMENT OF TUBAL PREGNANCY

WITH SPECIAL REFERENCE TO IMMEDIATE OPERATION FOR RUPTURE, BASED ON A STUDY OF TWO HUNDRED OPERATIONS [*] [†]

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NEW YORK

Gynecologists are agreed as to the necessity of immediate operation in unruptured tubal pregnancy, it is *in the* ruptured variety that opinions differ with regard to the indication for immediate operation

While I have always maintained that tubal pregnancy is a surgical disease, requiring surgical intervention as soon as possible, I have never insisted, and do not now, that an unruptured tubal pregnancy must be rushed to operation, on the contrary, there is no particular danger or risk to the patient if, for some good reason, the operation is postponed for a short time, provided, however, that the patient is kept under close observation and is so situated that an operation can be performed at once in the event of rupture On the other hand, it is in ruptured tubal pregnancy, especially when it is accompanied by shock and collapse, that I advocate and urge the immediate operation

My object in presenting this paper is to offer an earnest plea for the general recognition by abdominal surgeons of the dictum that hemorrhage into the peritoneal cavity must be sought for and checked as soon as diagnosed, and that opening the abdomen of a patient profoundly shocked and anemic from abortion or rupture of a tubal pregnancy does not *per se* offer any graver risk than opening the abdomen for any other intra-abdominal condition, and, furthermore, that delay in operating, no matter how slight, means increased risk greater danger and probably death to the patient This plea is based on a study of 200 operative cases [†]

That patients do die of hemorrhage, the result of ruptured tubal pregnancy or abortion, will be seen from the following case, which is reported in detail

CASE 1—*Patient*—B F, aged 28 called at my office with Dr M. J Katz, July 8, 1911 Patient had been married seven years and had three children, the last child was 9 months old she was still nursing She did not menstruate for four months subsequent to her delivery, and, after menstruating twice had amenorrhea for two months Then for six weeks she had irregular uterine bleeding and pain in lower abdomen

Examination—She was examined at a clinic on the previous day and a diagnosis of 'tumor" was made The patient was well nourished and in good physical condition Her pulse was normal and strong On vaginal examination I felt a large, elastic, fluctuating mass on the left side, but did not stop to make a thorough bimanual examination for the reason, as I stated to the physician, that, as the case was very suggestive of tubal pregnancy, further manipulation might cause a rupture. I advised immediate transfer to the hospital.

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[*] Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty Third Annual Session held at Atlantic City June 1912

[†] Because of lack of space this article is abbreviated by the omission of the table of cases The complete article appears in the *Transactions of the Section* and in the author s reprints.

The patient experienced no pain or discomfort while being examined, and left the table in good condition. The physician and myself then spent some time in trying to persuade her to go directly to the hospital for operation. After a little while the physician left, and the patient and her husband retired to the waiting room to think the matter over. On entering the waiting room a little later, I noticed a change in the patient, she was feeling faint and was complaining of pain in the abdomen, and although her pulse remained unchanged, I realized that I was dealing with the condition I dreaded all these years, namely, a rupture occurring in a tubal pregnancy while under examination in my office.

Treatment and Course.—The patient was at once placed in the recumbent position, and a hypodermic of morphin administered. Her pulse remained good and unchanged for some forty or fifty minutes. It was my intention, as soon as the shock subsided somewhat, to accompany her in an ambulance to the Polyclinic Hospital, situated some distance from my office, but instead of improving, her condition became alarming, her pulse grew constantly weaker, and in spite of stimulation she was rapidly sinking.

Realizing that there was no further time to be lost I phoned to Mount Sinai Hospital (eight blocks distant from my office) for an ambulance. The patient was taken at once to the operating room, and expired just as the incision was made by one of the surgeons operating at the time and a two months' fetus extracted from the abdomen. Death occurred in less than two hours from time of rupture.

This tragic death made a profound impression on me, and suggested the question as to how many of the patients whom I had seen brought to the operating-table in a similar state of shock and collapse might have gone the way of this woman, had they not been subjected to immediate operation.

This case teaches a valuable lesson, inasmuch as it establishes beyond doubt the all-important fact, which is after all the crux of this controversy, that it is impossible for a practitioner or a specialist, unless he be possessed of second sight, to determine in advance from the signs, symptoms, and condition presented by a given case of tubal rupture or abortion, as to whether the patient may rally from the shock, or die pending an operation.

I had occasion to study a large number of patients in shock and collapse due to this affection, and yet there was not a single feature in this case, viewed in the light of my past experience, that should have led me to suspect that rupture would be followed so rapidly by a fatal issue. If I had any guide to go by, I would certainly not have temporized and wasted forty or fifty precious minutes, when, I am convinced, an operation at the earliest possible moment would have saved the patient's life. I must frankly confess that in this instance I had for the first time departed from my invariable rule of dispatching these cases with all haste to the operating-table, because I was somewhat encouraged by the claims of some prominent observers that internal hemorrhage very rarely kills. "Never again."

The following history of a patient operated on at Beth Israel Hospital, in December, 1902, which I previously reported,[2] tells a different story.

CASE 2.—*Patient.*—A woman 29 years old, married nine years, had two children and two miscarriages. After amenorrhea of five weeks, patient began to have pain in the pelvis and uterine bleeding.

Operation.—On the day of admission to the hospital, she called at Dr. D. J. Hyman's office for treatment, and while waiting in the reception room, fainted and went into collapse. The doctor had her taken at once to the hospital where I was operating at the time. On admission her pulse was imperceptible and the heart sounds very faint, patient was unconscious. Without having her clothes removed, the patient was placed on the operating table, her abdomen scrubbed and disinfected and opened without anesthesia. The peritoneal cavity was found to be full of clots and fresh blood, the result of a ruptured right tubal pregnancy.

Course.—When regaining consciousness, some hours later the patient was surprised to find herself in bed and did not recall anything that transpired since she left the doctor's office. She made a rapid recovery thanks to her quick transfer and immediate operation.

Case 2 is not exceptional. It is one of a large series of patients suffering from various degrees of shock or collapse on whom the immediate operation was performed. In no instance did the severity of the shock or collapse militate against undertaking the immediate operation, on the contrary, the greater the shock the more haste was employed in rushing the patient to the operating-table.

The technic has been practically identical in all operations. The abdominal route is invariably employed. The patient is placed flat on her back, the abdomen is prepared in the usual manner, previous vaginal examination determines the side affected, median incision is made, the entire hand is introduced into the abdominal cavity, and directed at once toward the affected side, the mass is grasped, enucleated, and drawn into the wound. By firmly grasping the outer border of the broad ligament, further hemorrhage will be checked. No attempt is made to wipe away the blood or clots before the gravid tube is delivered at the wound, the steps of the operation having been carried out by touch only, but previous to tying off the pedicle sufficient blood is wiped away with damp pads to expose the pedicle clearly to view. The operation is completed in the usual manner. Before closing the abdomen, it is my habit to mop out as much of the blood and clots as possible with damp gauze pads.

When the patient is in extreme collapse intravenous saline infusion is given simultaneously with opening the abdomen. The large majority of the patients begin to improve as soon as the anesthetic is applied, but if the patient's pulse does not improve materially before removal from the operating-table, an intravenous infusion is given.

The following detailed reports of Cases 3 and 4 illustrate the results obtained in deferring operation in ruptured cases.

CASE 3.—*Patient.*—S. S., aged 28, married. After amenorrhea of two and one half months patient began to bleed and had colicky pains in left pelvic region. For several weeks she had a number of attacks of pain and fainting spells. One week before admission she had a severe attack of pain and went into shock from which she partly rallied. During all this time she was under the care of a midwife and was seen at different times by a number of physicians, two of whom to my knowledge advised operation. The advice was finally accepted when the patient was almost *in extremis*.

Operation and Course.—On admission to Beth Israel Hospital, July 19, 1909, patient was in condition of collapse, pulse was imperceptible, patient extremely blanched and weak. Laparotomy revealed a large quantity of dark clots and old blood and a still bleeding ruptured right tube. Intravenous infusion was administered. The pulse greatly improved after operation, but the patient went into secondary collapse about twenty hours later, and expired in spite of active stimulation.

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[2] Am. Jour. Obst., 1908, lvii, No. 1.

patch for the transfer of the patient to the nearest hospital, after giving a hypodermic of morphin, and I am greatly indebted for the cooperation of the practitioners who, profiting by the teachings of myself and others, have recognized the urgent necessity of the immediate operation and have acted on this principle The detailed plan of treatment elaborated by the advocates of deferred operation is very well and good, but after operation, and not before

In my anxiety that no time be lost in the transfer to the operating-table of patients suffering from ruptured tubal pregnancy, I have, on a number of occasions, refused to see the patients at home when summoned in consultation by physicians, but have insisted that they be taken immediately to the hospital

As an instance of practicing what one preaches, I will cite the following from a large list of similar cases

CASE 6—*Patient*—R. P, married Jan 22, 1912, after amenorrhea of six weeks, at about 10 p m, while at theater on the lower East Side, had several fainting spells, with pain on right side She was prescribed for by a physician who was called in by the management, and sent home, in the upper part of the city (a distance of about six miles) in a taxicab When seen by me with Dr Charles Phillips, about three hours later, patient was in complete collapse, pallor was extreme, and pulse at times imperceptible at wrist.

Operation and Course—Realizing the urgency of an immediate operation I advised her transfer to the nearest hospital, a few blocks away, instead of to one of the more distant hospitals with which I am connected At the physician's earnest solicitation that I remain in charge of the case, I compromised by having her admitted, through the courtesy of Dr S Marx, to the Red Cross Hospital, a short distance from her residence Without shaving, or any further preparation of the abdomen, except application of iodin, the operation was performed by Dr Marx and myself The abdominal cavity was filled with red blood, right tube was the seat of pregnancy, with rupture about 1 inch from fimbriated extremity, rupture was still bleeding Infusion was given Patient returned to bed with pulse of 120, full and strong About six hours later, secondary shock pulse over 140, feeble and thready, to guard against which, on account of it being a neglected case I had cautioned the house staff at the time of operation Under active stimulation pulse improved, and the patient entered on an uninterrupted convalescence

From my added experience I can only reiterate what I said in my previous paper on ectopic gestation[2] that it is my firm belief that the results obtained by me after immediate operation in extreme collapse support my contention that, no matter how profound the collapse of the patient, the urgent indication is to check the hemorrhage, and if the operation be performed with the ease and rapidity that is possible in the hands of specialists the additional shock, if any, will be so slight that it cannot be held responsible for a single death

Gynecologists do not stand alone in regarding shock as a contra-indication to operation, but general surgeons as well look on shock as a bugbear in connection with operations Dr Ellsworth Elliot, Jr, of New York, in his article on perforation of the stomach and duodenum,[7] calls attention to it in the following statement

> It is well to emphasize the fact that shock, when present is no contra indication to immediate operation in the above conditions This statement is again at variance with the more or less wide spread belief that under such circumstances operation should be deferred until the shock has subsided Every hour of delay in diagnosis or of delay in operation after the diagnosis had been made decreases the chances of the patient's recovery

I would like to see the word "delay" entirely eliminated from the lexicon of treatment of tubal pregnancy, for while there may be a slight justification in postponing operation in a few isolated cases, the teaching and agitation of this doctrine of delay, which, I regret to say, is not generally understood or sufficiently analyzed, have exerted a most baneful influence by raising a false sense of security in the minds of internists who, in consequence, procrastinate with a condition that demands the most urgent surgical interference, and the inevitable result has been an increased mortality and morbidity in the treatment of tubal pregnancy

I hope to see the indication for immediate operation for ruptured tubal pregnancy accepted as the rule, and that gynecologists and surgeons will unite in impressing on the men who see these cases first, the necessity and advantage of immediate operation, because it is on the promptness of their decision to refer cases of ruptured tubal pregnancy to a hospital for operation that the fate of these patients largely depends

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ABSTRACT OF DISCUSSION

DR. BROOKS WELLS, New York I have operated in only a little more than half of the number of cases Dr Ladinski is able to report, including eight of serious shock from hemorrhage and have had no deaths following operation I have seen two women bleed to death from ruptured ectopic and know of other unpublished cases Naturally, my own inclination is to operate on all of these patients as soon as proper environment can be secured It would seem that we should accept Dr Ladinski's conclusions You will agree that nearly all cases of ectopic pregnancy may be recognized by the physician in general practice before serious rupture has occurred and from the history of slight menstrual irregularity and unusual pelvic pain In these cases the indication is plainly to operate as soon as a skilled surgeon and proper surroundings can be secured Operation done before rupture or before serious bleeding is not ordinarily difficult and should be followed by almost no mortality Delay for from one to several weeks so that the patient's general condition may improve means, in my experience, increased morbidity with added danger from adhesions or sepsis Where the patient is in desperate collapse from sudden hemorrhage the question of procedure must always be largely influenced by the personal equation of the physician in charge Hospital environment is desirable, yet immediate removal to hospital is often too dangerous to be allowed Without adequate surgical training or skill it is undoubtedly safest to wait, as many of these patients recover from most desperate conditions while abdominal surgical intervention by the unskilled is too often attended by disaster Yet the skilled surgeon who refuses operation because of alarming conditions cannot by so doing shift his responsibility in the event of the patient's death My own rule in cases of dangerous collapse is to operate as soon as ready unless some improvement is shown during the time of waiting for necessary preparation Keep the patient warm on the table, use light ether anesthesia, a moderate Trendelenburg position, get in quickly, tie off the tube *en masse*, scoop out only clots easily reached, close the abdomen, give hot water by rectum and expect the patient to get well It is ideal to make the diagnosis and remove the cause before rupture has occurred It is good surgery to operate in all cases as soon as proper environment and skill can be secured In the absence of proper skill and environment the waiting policy will give the lowest death rate

DR S M. BRICKNER, New York I endorse the position taken by Dr Ladinski so far as the immediate operation in ruptured tubal pregnancy is concerned If we had more diagnostic skill in the direction of differentiating the condition of the tubes in cases of tubal pregnancy, the majority of cases of tubal abortion could safely be left to themselves They are the cases in which eventually we have either a small hematocele or in which blood is free in the abdominal cavity and is quickly absorbed In a series of 122 cases of tubal pregnancy of all varieties in our hospital, two patients died, both cases were ruptured tubal pregnancy In one case the patient was brought into the hospital moribund, operated on without an anesthetic, and died on the table In the other case an erroneous diagnosis of ordinary abortion was made The patient was curetted by the house surgeon and three hours afterward went into profound collapse, and when I saw her one hour later she was gasping Although the abdomen was quickly opened and the vessels ligated, the patient died I have had the opportunity of watching two patients in the ward with all the clinical symptoms of tubal pregnancy who without doubt due to the repeated examinations made, started to bleed and went into collapse in three or four hours after admission Both were operated on as soon as the symptoms of collapse and shock appeared We have no hesitation in operating under these conditions Six years ago, I quoted in this Section the dictum of Werth, who says that an unruptured tubal pregnancy must be regarded in the light of a malignant neoplasm and demands immediate operation I endorse completely the attitude taken by Dr Ladinski

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[7] Elliot F Ann Surg 1912 lv No 4.

DR WALTER P MANTON, Detroit I endorse Dr Ladinski's attitude in this matter This subject was fully discussed at the meeting of the American Gynecological Society a couple of years ago and I there stated my own belief in immediate operation It is not always possible to operate on a patient within an hour or so after rupture takes place, but I believe that in all cases just as soon as a qualified surgeon can be secured or the patient can be taken to a hospital, in both unruptured and ruptured tubal pregnancy, operation should be done at once Whether the bleeding comes from the ruptured tube or from the tubal ostium is unimportant, operation should be done as quickly as possible

DR L J LADINSKI, New York With tubal abortion as with uterine abortion we cannot tell in advance whether we are dealing with a case of pending, incomplete or complete abortion It is not only difficult to differentiate between tubal abortion and tubal pregnancy, but it is also difficult to diagnose the variety of abortion The worst intra abdominal hemorrhage I have seen was from a tubal abortion I have pointed that out in a previous paper This is because the hemorrhage from a tubal abortion may be slow and insidious, and the patient becomes somewhat accustomed to it and does not show the effects of it until she is practically collapsed, whereas the bleeding from a rupture is, as a rule, very rapid and the evidences are at once noticeable I can only repeat that not only are the chances for the patients better by the immediate operation, both for ruptured and unruptured, and for tubal abortion, but I am firmly convinced that the mere agitation for delaying operation has undoubtedly cost many a life In fact, the very patient in whom a rupture occurred in my office and whom I allowed to wait for about an hour, instead of having her transferred at once to the hospital, I believe would have been saved had I not been imbued with the idea that possibly there was some ground for the belief that patients do not die of an intra abdominal hemorrhage Up to that time I had very rarely seen a death from intra abdominal hemorrhage due to tubal pregnancy The cases of the two patients who died after delayed operations, which I reported, compared with the 107 cases of patients operated on promptly who recovered, emphasize the wisdom of immediate operation

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The Practice of Medicine as a Fine Art.—Both in diagnosis and in treatment, one skilled clinician of long experience may be and often is, much more accurate when not using elaborate scientific methods than is another who is using them The scientific physician in treating a case of pneumonia may pin his faith down entirely to the use of a vaccine, and perhaps deprecate the use of other methods, the more artistic physician may use the vaccine but will most certainly not rely on it only but on many other means some of which may seem trifles to the scientist —Ernest S Reynolds, in *British Medical Journal*

DRAINAGE OF THE KIDNEY BY INCISION FOR BACILLUS COLI COMMUNIS INFECTION IN PREGNANT AND PARTURIENT PATIENTS

WITH REPORT OF CASES *

EDWARD P DAVIS, M D
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Infection of the kidney during pregnancy by the *Bacillus coli communis* has been frequently brought to the attention of the profession, and the literature of the subject has become considerable The limits of space and time forbid an extensive literary review of this subject

Abundant clinical observation shows that the right kidney is most usually involved The anatomic explanation for this lies in the relation of the right ureter to the intestine, and the comparatively easy access of the infective germ from the intestine to the pelvis of the kidney Some observers have recognized ascending infection, the infective germ first gaining access to the bladder through the urethra and then passing upward along the ureter to the pelvis of the kidney In all cases the *B coli communis* is the principal agent of infection Mixed infection with staphylococci or with streptococci may be present

No predisposing cause has yet been clearly demonstrated for this complication It has not been found more frequently in contracted pelvis, but is unquestionably most often seen in ill-nourished patients in whom the functions of the intestine are sluggishly performed and in whom there is chronic intestinal stasis

The chief symptoms of the condition are indefinite pain in the right side of the dorsal region and in the right lower abdomen It is often impossible to differentiate this pain from the pain of subacute appendicitis As the infection becomes well developed the pain is more frequent, and in some cases chills develop The patient's nutrition is manifestly at fault

Examination of the urine shows acid reaction, more or less serum albumin, epithelium from the pelvis of the kidney, and abundant *B coli communis* The significant clinical points in the urinary findings are the acid reaction and the abundant presence of the infective germ At operation on one of my patients the *B coli communis* was found in blood taken from a diseased kidney

The significant feature in diagnosis is the high leukocytosis In one of my cases it was 29 000 and in a case reported by French[1] at Guy's Hospital the leukocytes were 25,000 per c c of blood A pure culture of the *B coli communis* can usually be obtained from the urine

In thin patients with relaxed tissues the affected kidney can usually be distinctly palpated and is evidently enlarged

In mild cases the disease tends to recovery if the patient's diet be limited to milk, and pure water be used abundantly Rest and free action of the bowels are indispensable Mild cases do not tend to abortion and in the puerperal period mild cases do not commonly result in general septicemia

When infection is overwhelming and mixed infection is present, the kidney may be riddled with ab[illegible] pyemia and septicemia devel[illegible] follows, and in the puerperal period septicemia may develop

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* Read in the Section on O[illegible] [illegible]ican Medical Association at it[illegible] Atlantic City June 191[illegible]

1 French Brit. Med. Jour [illegible]

The medical treatment of the condition consists in a differential diagnosis, between pyelonephritis from infection by the *B coli communis* in the right kidney, and appendicitis This diagnosis may be difficult and practically impossible Fortunately, the treatment for both conditions, if mild, is practically the same Rest in bed, a milk diet, and abundant use of pure water, with purgation, are sufficient If the *B coli communis* be obtained in pure culture from the urine, the use of hexamethylenamin is often beneficial

When the disease does not yield to these measures, the obstetrician must remember the danger of the development of nephritic abscess Drainage of the kidney must then be employed This may be done by catheterizing the ureter and by irrigating the pelvis of the diseased kidney If there is doubt as to which kidney is involved, catheterizing the ureter should give the desired information The fluid injected may be salt solution or any of the less noxious antiseptics, in considerable dilution The objection to this method of treatment lies in the fact that it is possible to add to the infection by this manipulation, that the drainage is but temporary, and the action of the antiseptic solution so applied is comparatively brief

Drainage by nephrotomy or lumbar incision has the merit of enabling the operator to make a positive diagnosis and to apply surgical principles of treatment in a prompt and efficient manner The kidney should be exposed by the usual lumbar incision, brought up to the surface of the wound, and several stitches of chromicized catgut passed through its capsule and through the edges of the wound to retain it in position The kidney is then incised along its convex border and the finger passed through the kidney substance to the pelvis, when an opening large enough to permit free drainage should be made by the use of the finger A gauze drain is then inserted to the pelvis of the kidney and carried out through the center of the wound This is gradually removed, and if desired the kidney may be irrigated from the fistulous tract, which gradually closes

The obstetrician may be unable to demonstrate the existence of pus in the fluid which comes from the kidney in this operation The kidney is enlarged and hyperemic and the blood is so abundant that unless abscess be present a small quantity of pus may be overlooked Cultures taken from the blood which comes from the kidney will demonstrate the presence of infection

If the operator is in doubt regarding the condition of the appendix, appendectomy should be added to the operation Unless drainage of the appendix site is necessary this wound should be completely closed after the removal of the appendix and its presence does not complicate the patient's recovery

CASE REPORTS

Case 1 — K M, aged 23, third pregnancy, ill nourished gave a history of an illness of over two weeks She was pregnant about seven months There had been continuous pain over the right abdomen, with vomiting and several chills Pulse and temperature were considerably above normal, but high fever was absent A leukocytosis of 26,600 was present. The urine was acid and swarming with the *B coli communis* The germ was obtained from the urine in pure culture The left kidney could not be palpated, but as the patient was ill nourished and her tissues relaxed, the right kidney could be distinctly outlined

Medical Treatment—Rest in bed, milk diet, hexamethylenamin purgation and the copious use of water, failed to mitigate the patient's sufferings The advent of chills suggested the necessity for operation

Operation—Jan 11, 1911, the right kidney was exposed by the usual lumbar incision The organ was much enlarged and dark bluish in color Retention stitches of chromicized catgut were passed through the two extremities of the capsule and the kidney incised along its convex border An abundant flow of dark blood followed The finger of the gloved hand was then passed cautiously through the kidney substance to the pelvis and the opening dilated sufficiently to permit the ready introduction of a gauze drain The blood taken from the kidney at the time of operation showed the presence of *B coli communis* The lumbar wound was then closed at its extremities, leaving the center open for drainage

Appendectomy—As no pus was visible, and as abscess could not be seen and the patient's pain had extended over the entire right abdomen, the appendix was then exposed by the usual incision and removed It was somewhat enlarged and catarrhal, but otherwise normal The patient improved immediately following the operation, the leukocytes diminishing to 10,000 On Feb 5 following, when the kidney wound was almost closed, the patient came into spontaneous labor and gave birth to a female infant 46 cm long, and weighing 5 pounds 8 ounces Mother and child made an uninterrupted recovery and were discharged from the Maternity Department of the Jefferson Hospital in good condition

Case 2—E C, aged 21, in second pregnancy at about six months, was referred to the Maternity Department from the examining room of the General Hospital, having been sent by a physician who supposed she had typhoid fever His diagnosis was based on moderate rise in pulse and temperature, a mild toxemia, and some slight disturbance of the intestine

Examination—The red blood cells were 4,500,000, leukocytes 20,000, color index 0 8 plus, hemoglobin 75 per cent The urine was acid, containing abundant *B coli communis* in pure culture The patient's illness was of indefinite duration and she had been treated for typhoid fever for over a week before admission Neither kidney could be palpated, and the patient's pain was so indefinite that it gave little information concerning her condition

Operation—At operation the right kidney had been so elevated by the uterus and its contents that it was brought to the surface of the wound with considerable difficulty The kidney was enlarged and dark bluish in color It was anchored in the wound by stitches passed through the capsule, the convex surface of the kidney was incised, and the finger passed through the pelvis A free discharge of dark blood mixed with a seropurulent fluid followed A gauze drain was inserted and the appendix then removed through the usual incision The appendix was postcecal but not adherent nor perforated It was removed without difficulty and the wound closed The patient made an uninterrupted recovery, the leukocytes speedily diminishing to 15,800 and the wound gradually closing Between five and six weeks after the operation the patient was well, the leukocytes 10,600, and the wound healed She was discharged as she preferred to be confined at home

There are several points of practical interest connected with the subject of renal surgery in pregnancy Pousson's interesting paper presented before the French Congress of Gynecologists in 1910,[2] gives a considerable collection of these operations In sixty-six patients in whom nephrectomy had been done and who subsequently became pregnant, fifty-nine were delivered at term, most of them nursing their children, and one becoming a wet-nurse Pinard removed a tuberculous kidney, the patient afterward passing through a normal pregnancy In eight of Israel's cases of tuberculous kidney with nephrectomy, fifteen pregnancies subsequently developed uncomplicated, followed by normal labor Hartmann reported 113 renal operations on women thirty-five during pregnancy, and seventy-eight followed sooner or later by pregnancy Among the thirty-five he included

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[2] Pousson Ann de gynéc. et d obst. October 1910 p 674

Cragin's vaginal nephrectomy for the removal of a displaced cystic kidney in the pelvis which was obstructing labor Normal delivery occurred the next day In Twyman's experience, in twenty-six nephrectomies during pregnancy, one patient died of eclampsia on the second day, the other had phlebitis before the nephrectomy In the remaining twenty-four, pregnancy went to full term in twenty-two In four out of five nephrectomies in pregnancy gestation was uninterrupted The fifth patient died on the second day after premature labor In one nephropexy and one incision into a perinephritic abscess during pregnancy, there was no premature delivery or other complication

There is abundant evidence that the removal of one kidney does not make subsequent pregnancy impossible. Thus, in seventy cases a single kidney carried the patient through pregnancy, which was sometimes repeated In three nephrectomies, one patient had miscarriage, one became pregnant twice going to full term, and one three times It is also found that bilateral decapsulation does not prevent subsequent normal pregnancy and labor

It is noticeable that in these cases interference with the uterus was followed by disastrous results

In a recent extensive review of the subject Burnett[3] calls attention to an interesting point in diagnosis When the infection is by *B coli communis* only, the urine remains clear, acid in reaction, and free from ammoniacal odor, because this germ does not split up the urea into ammonia If staphylococci and streptococci be present cystitis develops, the urine becomes alkaline, ammoniacal in odor, with mucus, lymph and pus cells

Another interesting point in differential diagnosis lies in the fact that hematuria in these cases is rarely present On the contrary, in pernicious toxemia of pregnancy hematuria is often present in severe cases This condition may be mistaken for appendicitis, malaria, pleurisy, or the passage of a renal calculus

In the treatment of this condition serum has been unsatisfactory, because the *B coli communis* does not develop an antitoxin Autogenous vaccines have not proved very valuable except in ameliorating the symptoms This statement is borne out by the experience of French, who treated a patient after operation by vaccines prepared from cultures of the *B coli communis* obtained from the patient's urine The injections were made at intervals of about two weeks, the dose consisting of the products of 500,000,000 bacilli The patient steadily improved, but the pyuria persisted.

The extreme rarity of tuberculosis of the kidney in pregnancy renders the confusing of this condition with *B coli communis* infection very unlikely At Guy's Hospital there has been no case of pregnancy with tuberculous kidney in the last twenty years

Sondern[4] in eighteen cases found operation necessary in four In his experience it was possible to rule out tuberculosis and gonorrhea by the study of the bacilli found in the urine

CONCLUSION

This contribution to the literature of the subject is made with the hope of directing the attention of obstetricians to two points first, that the existence of pregnancy does not forbid surgical treatment in this condition second, that surgical treatment is indicated as soon as other measures fail to produce improvement, experience shows that drainage by nephrotomy is the safest for mother and child This was brought forcibly to my mind by a recent case seen in the Jefferson Hospital in consultation with a surgical colleague

The patient, a young primipara, had high temperature and repeated chills Operation was urged, but declined, the patient subsequently giving birth to a dead child, and making a tedious recovery

250 South Twenty First Street.

ABSTRACT OF DISCUSSION

Dr. Curtis F Burnam Baltimore Dr Davis has brought up a question which I have often wondered about i e how these kidneys would close after doing nephrotomy with a pregnant uterus below One case that I saw was unsatisfactory, as a permanent fistula persisted and the kidney was ultimately lost. We ought to distinguish clearly cases of pyelitis from those of pyelonephritis, and those that occur before the third month of pregnancy from those in the later months. We see a good many cases with pyelitis of pregnancy within the first three months and when it is a pyelitis alone often the only symptom is a continuous fever resembling typhoid and the blood instead of showing increased leukocytosis shows normal Often there is little pus in the urine and a casual examination of the urine would lead one to discard the belief that there was infection in the kidney Sometimes these cases have a malaria like fever In the early cases the plan of treatment which we have followed has been to put the patients on a milk diet, abundant water and rest in bed then to give the only urinary antiseptic which I believe is capable of destroying bacteria—hexamethylenamin At the April meeting of the American Urological Society I reported the results of my experiments, showing that its virtue in the urine is dependent on the liberation of free formaldehyd, and that when this liberation does not take place it is useless to continue the drug The infection is sometimes bilateral It has been our custom in the more resistant cases to catheterize the kidney daily or every other day, and irrigate with formaldehyd 1 2 000 solution When this fails to relieve, the next step is to induce miscarriage I can conceive of how difficult and dangerous the induction of labor must be in the later months but I have seen no ill results from induction in the early months The hexamethylenamin which may have been ineffectual beforehand immediately clears the cases up

Dr. C S Bacon, Chicago I had accepted the rule as well established that such patients should not be operated on because, as a rule they improve and become practically speaking, well after labor, and the cases are very rarely so serious as to demand any operation I should like to ask what the final result of the operation is Practically all the cases are chronic infections I believe that the infection frequently starts in infancy as a colon bacillus infection ascending from the vulva

Dr. H D Furniss, New York In the literature of many of these cases of pyelitis in pregnancy there has been a history of antecedent cystitis in most In the statistics of twenty five patients who had died from other causes but who had cystitis (Sugimura), there was involvement of the lower end of the ureter that caused a certain amount of obstruction and this inflammation extended through the lymphatics In the treatment of these cases of pyelitis the best results are from ureteral catheterization In a number simply the passing of the catheter relieves If this fails irrigation is advisable In addition to that it is necessary to look after the bladder condition to relieve the hyperemia and obstruction If more attention were paid to vesical irritation in early pregnancy in cystitis, we would avoid cases of subsequent severe infection The cases that Dr Davis has cited of nephrotomy with discharge for a month or two afterward speaks for some obstruction lower down as the kidney would close soon if there is good drainage into the bladder through the ureter I think in all these cases there will be found some obstruction in the lower end of the ureter and in the majority of cases it is of inflammatory origin

Dr. William Linder, Brooklyn I want to call attention to a condition of unilateral infection of the [illegible] of hematogenous origin occurring in [illegible] is one of exceptional interest and, among other things, must be differentiated from pyelitis of pregnancy One is an ascending, the other a descending or hematogenous infection caused, in the vast majority of cases, by the colon bacillus The lesion is cortical, consisting of numerous miliary abscesses of the kidney underneath the capsule The onset is acute and the condition must be differentiated from an upper abdominal condition, as cholecystitis, perforated gastric or duodenal ulcer There is extreme tenderness at the corresponding costovertebral angle, sudden rise in temperature, nausea and vomiting, and upper right rectus rigidity Microscopically, one finds a few white blood cells and a few red blood cells, differing from pyelitis, in which there is considerable pus found under the microscope One patient had frank hematuria followed by anuria in twenty four hours The patients were all treated medically for several days without improvement Nephrectomy is the only cure In six consecutive cases, I found the lesions so extensive that nephrectomy seemed the only rational procedure In four cases the lower pole was involved and here a partial nephrectomy was sufficient In two cases the capsule of the kidney was stripped and enveloped in iodoform gauze for drainage In not one case was pregnancy interrupted and all the twleve patients recovered

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[3] Burnett Jour Obst. and Gynec. Brit. Emp., July and August 1910

[4] Sondern Bull Lying In Hosp New York, 1909 No. 1.

Dr **Edward P Davis**, Philadelphia In answer to Dr Bacon's question, the urine became normal and the patients got well There was no evidence of abnormal position or condition of the kidney There was no pain on palpation Regarding the question of cystitis in these cases, when there is a cystitis there is a mixed infection, with alkaline urine containing pus, and these phenomena were absent The reason the wounds did not close quickly was that we did not let them close. We repacked and irrigated, using as an index the leukocytosis, condition of the urine and the patient's pulse and temperature

THE OCCURRENCE OF GENERAL PARALYSIS IN WOMEN *

GEORGE W T MILLS M.D
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CENTRAL ISLIP N Y

My desire is to draw attention to the occurrence of general paralysis in women and to present the results in one of the New York state hospitals from that standpoint

For years it has been stated that this disease was much more common in men, the ratio being variously given as from 1 to 4 to 1 to 7 and the percentage from 3 to 6 It is our contention that general paralysis is nearly, if not quite, as common in women as in men, especially in the city, and I shall endeavor to point out how and why we arrived at this radical view Most of the work has been done in the past three years, but the conclusions are drawn from a period of four years, during which time 2,800 women have been admitted and 639 lumbar punctures done

If we go back over the annual reports of the New York State Commission in Lunacy, beginning, say, with the fiscal year of 1907, we find that the occurrence in women is given as about 6 per cent, and no change is apparent until the fiscal year 1909 and 1910, when we find the figure has risen to 8 4 per cent On further analysis of this report, however, we find the only hospital in the state reporting any material increase, is the state hospital at Central Islip In the Central Islip reports, we find for the year ending Sept 30, 1908, that the figure is 6 2 per cent, for 1909, it is 13 4 per cent, for 1910, it is 20 4 per cent, and although the final figure for the last fiscal year is not yet at hand, it will be in the neighborhood of 20 per cent, i e, there was a rapid increase over a period of two years, since then the figure has remained about stationary at 20 per cent Incidentally, there has also been an increase in the cases diagnosed cerebral syphilis and psychoses accompanying nervous diseases, the report for 1908 shows 0 5 per cent in this organic group, whereas in 1910 it is 2 per cent, i e, the increase of general paralysis has not been by changes of diagnosis in the organic group, but has been essentially from the so-called functional groups

In October, 1909, at an interhospital conference at Ward's Island, New York City,[1] I referred to the increase at Central Islip, and in Dr Smith's annual report for the year 1910[2] will be found the following "I am strongly of the opinion that general paralysis is far more frequent in women than has hitherto been believed To this end, nearly all patients of foreign tongue are tested in their own language for speech and writing defects Our investigations have shown that any form of mental complex can be present in general paralysis" These two citations, so far as I know, represent the first assertions that the percentage of general paralysis in the female could in any way approximate the percentage in the male

It has long been accepted as a fact that general paralysis is much more common in cities than in the country districts A very careful review of insanity in Orange County, N Y, by Dr Woodman,[3] shows that 75 per cent of the paretics were from the three small cities of that county Our admissions are almost exclusively from New York City and a certain excess over the rest of the state was expected, we found, however, many diagnostic difficulties Our admissions represent the lowest element of city life and the percentage of foreign-born is very high with the consequent large numbers who do not understand or speak English

For example, some time ago a fiscal year with 745 female admissions was reviewed, and it was found that 63 per cent of the patients were foreign-born, 40 per cent of whom had been ten years or less in the country

When we recall the important symptoms of general paralysis, we find, in prominent positions, speech and writing on the physical side and memory on the mental One can, therefore, readily see the difficulties in diagnosis on an admission service showing such a high percentage of foreign-born, of importance also is the large percentage of illiterates The development of the psychosis is also of great diagnostic value Many of our patients are never visited, many have no friends They are often living apart from their relatives, and their visitors, when they come, either because of lack of knowledge, or as is perhaps more often the case, because of their own ignorance and poor observing powers, give us an incorrect account There is also a great deal of intentional deceit A patient presenting an hallucinosis, a delusional system, a depression, or any one of the various complexes, naturally directs our attention to his more prominent symptoms, his visitors do the same, and the finer changes in conduct, moral sense, judgment, reasoning, etc, which are often prominent early symptoms in the educated or in those holding responsible positions, are either not shown by our class of patients or are not noted by their friends and relatives The same applies to memory, in the humdrum existences of such persons time relations are often lost normally Then it is hard to gauge the former educational, emotional and other levels of the patient, i e, to tell if they are deteriorating or not

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* Read before the New York Neurological Society, May 7 1912.

[1] State Hospital Bulletin March 1910 ii No 4 p 789

[2] Annual Report of the Central Islip State Hospital, 1909 10 p 8

[3] State Hospitals Bulletin December, 1910, iii No 3, p 321

Therefore, in the investigation of our cases, we have come to lay great stress on any neurologic sign, on atypical mental pictures and on memory defects

To refer again to the superintendent's report and to the efforts that are made to examine for speech and writing difficulties, it has been our custom to call freely on interpreters and to endeavor in all cases to establish whether or not the speech and writing are abnormal, regardless of the mental complex I have perhaps been unusually fortunate in having available the services of several reliable interpreters

The difficulties, some of which I have enumerated, gradually led to the increased use of lumbar puncture, and the presence of even a few suggestive physical or mental signs became sufficient to justify a puncture Lately, of course, the Wassermann findings have been given their place in the complex It was not until 1908 that lumbar puncture was taken up by us to any degree During that year there were, on the female reception service, about thirty punctures, and you will recall that the percentage of general paralysis that year was 6 2 There were ninety-five punctures in 1909, 181 in 1910 and 192 in 1911 Of course, numerous patients were punctured more than once but such repeated punctures are not included in the above figures

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Case 3—Illustrating other phases of manic depressive A B German, married woman aged 37 had had approximately seven years ago an excited phase of short duration December 1909 following a suicidal attempt she was admitted to Central Islip State Hospital No neurologic signs were made out The patient was depressed and dazed her replies were slow and delayed She was disoriented and confused After two weeks, she began to show some distractibility but continued bewildered she complained that things seemed changed After another two weeks well marked improvement was apparent. She seemed to make a good recovery and was discharged two months after admission with the diagnosis of manic depressive. One year and six months later the patient was readmitted, this time in a very excited condition showing marked distractibility and flightiness Shown money she remarked "Oh—what you got this time—an English piece—what is it, Canada—I can't read it without my glasses—this English—no—what do you want to test me for—oh a quarter—oh listen you don't want to give me money after all you done for me—well Dr M I suppose you want to know it of me again—I—we moved—well I was four weeks in a boarding house—you know Mr B sold everything and he got a regular loafer—sold the furniture—he got $180 for a $700 flat—he works so hard—you know, doctor, he was married before" etc Physically, however, there were marked speech and writing defects The patient was tremulous and the deep reflexes were exaggerated. There was at first some improvement but she gradually failed became bed ridden, very ataxic, partially paralyzed and died one year and nine months after the second admission The slide from the lumbar puncture showed an uncountable number of cells, the Wassermann was positive in both blood serum and spinal fluid The diagnosis of general paralysis was confirmed by autopsy

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It may appear to some that I have laid too much stress on lumbar puncture, but I do not want to be is one of exceptional interest and, among other things, must be differentiated from pyelitis of pregnancy One is an ascending the other a descending or hematogenous infection caused, in the vast majority of cases, by the colon bacillus The lesion is cortical consisting of numerous miliary abscesses of the kidney underneath the capsule The onset is acute and the condition must be differentiated from an upper abdominal condition as cholecystitis, perforated gastric or duodenal ulcer There is extreme tenderness at the corresponding costovertebral angle, sudden rise in temperature, nausea and vomiting, and upper right rectus rigidity Microscopically, one finds a few white blood cells and a few red blood cells, differing from pyelitis, in which there is considerable pus found under the microscope One patient had frank hematuria followed by anuria in twenty four hours The patients were all treated medically for several days without improvement Nephrectomy is the only cure In six consecutive cases, I found the lesions so extensive that nephrectomy seemed the only rational procedure In four cases the lower pole was involved and here a partial nephrectomy was sufficient In two cases the capsule of the kidney was stripped and enveloped in iodoform gauze for drainage In not one case was pregnancy interrupted and all the twleve patients recovered

Dr Edward P Davis, Philadelphia In answer to Dr Bacon's question, the urine became normal and the patients got well There was no evidence of abnormal position or condition of the kidney There was no pain on palpation Regarding the question of cystitis in these cases, when there is a cystitis there is a mixed infection, with alkaline urine containing pus, and these phenomena were absent The reason the wounds did not close quickly was that we did not let them close We repacked and irrigated, using as an index the leukocytosis, condition of the urine and the patient's pulse and temperature

THE OCCURRENCE OF GENERAL PARALYSIS IN WOMEN *

GEORGE W T MILLS, MD
Second Assistant Physician Central Islip State Hospital
CENTRAL ISLIP, N Y

My desire is to draw attention to the occurrence of general paralysis in women and to present the results in one of the New York state hospitals from that standpoint

For years it has been stated that this disease was much more common in men, the ratio being variously given as from 1 to 4 to 1 to 7 and the percentage from 3 to 6 It is our contention that general paralysis is nearly, if not quite as common in women as in men, especially in the city and I shall endeavor to point out how and why we arrived at this radical view Most of the work has been done in the past three years, but the conclusions are drawn from a period of four years, during which time 2 800 women have been admitted and 639 lumbar punctures done

If we go back over the annual reports of the New York State Commission in Lunacy, beginning, say, with the fiscal year of 1907, we find that the occurrence in women is given as about 6 per cent, and no change is apparent until the fiscal year 1909 and 1910, when we find the figure has risen to 8 4 per cent On further analysis of this report however, we find the only hospital in the state reporting any material increase, is the state hospital at Central Islip In the Central Islip reports, we find for the year ending Sept 30, 1908, that the figure is 6 2 per cent for 1909, it is 13 4 per cent, for 1910 it is 20 4 per cent, and although the final figure for the last fiscal year is not yet at hand, it will be in the neighborhood of 20 per cent, i e, there was a rapid increase over a period of two years, since then the figure has remained about stationary at 20 per cent Incidentally, there has also been an increase in the cases diagnosed cerebral syphilis and psychoses accompanying nervous diseases, the report for 1908 shows 0 5 per cent in this organic group, whereas in 1910 it is 2 per cent, i e, the increase of general paralysis has not been by changes of diagnosis in the organic group, but has been essentially from the so-called functional groups

In October, 1909, at an interhospital conference at Ward's Island, New York City,[1] I referred to the increase at Central Islip, and in Dr Smith's annual report for the year 1910[2] will be found the following "I am strongly of the opinion that general paralysis is far more frequent in women than has hitherto been believed To this end, nearly all patients of foreign tongue are tested in their own language for speech and writing defects Our investigations have shown that any form of mental complex can be present in general paralysis" These two citations, so far as I know, represent the first assertions that the percentage of general paralysis in the female could in any way approximate the percentage in the male

It has long been accepted as a fact that general paralysis is much more common in cities than in the country districts A very careful review of insanity in Orange County, N Y, by Dr Woodman,[3] shows that 75 per cent of the paretics were from the three small cities of that county Our admissions are almost exclusively from New York City and a certain excess over the rest of the state was expected, we found, however, many diagnostic difficulties Our admissions represent the lowest element of city life and the percentage of foreign-born is very high with the consequent large numbers who do not understand or speak English

For example, some time ago a fiscal year with 745 female admissions was reviewed, and it was found that 63 per cent of the patients were foreign-born, 40 per cent of whom had been ten years or less in the country

When we recall the important symptoms of general paralysis, we find, in prominent positions, speech and writing on the physical side and memory on the mental One can, therefore, readily see the difficulties in diagnosis on an admission service showing such a high percentage of foreign-born, of importance also is the large percentage of illiterates The development of the psychosis is also of great diagnostic value Many of our patients are never visited, many have no friends They are often living apart from their relatives, and their visitors, when they come, either because of lack of knowledge, or as is perhaps more often the case, because of their own ignorance and poor observing powers, give us an incorrect account There is also a great deal of intentional deceit A patient presenting an hallucinosis, a delusional system, a depression, or any one of the various complexes, naturally directs our attention to his more prominent symptoms, his visitors do the same, and the finer changes in conduct, moral sense, judgment, reasoning, etc, which are often prominent early symptoms in the educated or in those holding responsible positions, are either not shown by our class of patients or are not noted by their friends and relatives The same applies to memory, in the humdrum existences of such persons time relations are often lost normally Then it is hard to gauge the former educational, emotional and other levels of the patient, i e, to tell if they are deteriorating or not

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* Read before the New York Neurological Society May 7 1912

[1] State Hospital Bulletin March 1910 II No 4 p 789

[2] Annual Report of the Central Islip State Hospital 1909 10 p 8

[3] State Hospitals Bulletin, December, 1910 III No 3, p 3-1

Therefore, in the investigation of our cases, we have come to lay great stress on any neurologic sign, on atypical mental pictures and on memory defects

To refer again to the superintendent's report and to the efforts that are made to examine for speech and writing difficulties, it has been our custom to call freely on interpreters and to endeavor in all cases to establish whether or not the speech and writing are abnormal, regardless of the mental complex I have perhaps been unusually fortunate in having available the services of several reliable interpreters

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It may appear to some that I have laid too much stress on lumbar puncture, but I do not want to be understood as saying that lumbar puncture or the Wassermann reaction, or both, are by themselves sufficient for the diagnosis of general paralysis, they are only two points in the diagnosis — two very important points — but there must be other neurologic and mental signs, the case must be reviewed in its entirety The actual pleocytosis of the spinal fluid has not been of so much value *per se* as it has been in directing our attention to the probability of an organic basis and thereby inciting us to more careful physical and mental examinations, they in turn resulting in our rapid and marked percentage increase

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THE DIAGNOSIS OF DIVERTICULITIS OF THE LARGE BOWEL

A CLINICAL REVIEW OF TWENTY-SEVEN CASES*

H Z GIFFIN, M D
Attending Physician to St Mary Hospital
ROCHESTER, MINN

Our earlier experience at St Mary's Hospital with diverticulitis of the large bowel has been reported in former articles[1] The clinical similarity of diverticulitis and carcinoma has been emphasized The condition has been placed clearly on a definite pathologic basis, and the possibility of the development of carcinoma on diverticulitis has been demonstrated A more detailed analysis of the symptoms and the physical findings in a group of personally observed cases has not, however, been made, and it is with the idea of determining whether or not a more or less definite clinical picture presents itself that this review is undertaken

From Jan 1, 1902, to Jan 1, 1912, twenty-seven operations for diverticulitis of the large bowel were performed at St Mary's Hospital, Mayo Clinic, and the cases were studied clinically and pathologically This number includes only those cases in which the operation was done primarily for this condition One of them has been previously reported by Graves[2] and eight by my associates and myself[1] The entire group has been reviewed from an anatomic standpoint by McGrath,[3] and the reader is referred to his paper for the details of the pathologic diagnosis In four additional cases diverticula with slight pathologic change were found as a secondary condition and in one other case an anastomosis was made subsequent to a resection for diverticulitis of the sigmoid elsewhere Moreover, in seven instances a condition suggesting diverticulitis was found at operation, but diverticula could not be demonstrated positively In all then thirty-nine cases have been observed which were either positively proved to be diverticulitis or in which this condition was strongly suspected at operation

Of the twenty-seven cases which come directly under our consideration twenty-two were in the sigmoid or the sigmoid and descending colon, while two occurred in the rectum one in the transverse colon near the hepatic flexure one at the hepatic flexure and one at the anal ring Carcinomatous degeneration had taken place in five of the twenty-two specimens from the sigmoid The remaining seventeen cases of simple inflammatory lesion occurring in the sigmoid constitute the most important group for a consideration of the clinical manifestations which may differentiate the condition and assist us in arriving at a clinical diagnosis, and these will therefore be considered first During the same period of time there were 120 operations for carcinoma of the sigmoid The relative frequency of diverticulitis and carcinoma is, therefore, as one to seven

SYMPTOMATOLOGY IN NON-MALIGNANT LESION OF THE SIGMOID

Preoperative Diagnoses —Only three of the seventeen cases were diagnosed as carcinoma From a clinical standpoint it was thought that the rest might be inflammatory One was diagnosed as acute appendicitis, in this case the appendix was in reality inflamed, but the abscess was secondary to a perforating diverticulitis of the sigmoid Four of the patients, all women, presented pelvic tumors and these were in every instance believed to be inflammatory clinically In them bowel symptoms were absent except for severe constipation which is so common a complaint in women especially with pelvic disease Two cases were diagnosed simply as "tumors of the sigmoid" and this implied a doubt as to their malignancy In seven instances diverticulitis was recorded in the clinical history as the diagnosis of preference, though it is true that in one of these the diagnosis had been made pathologically at a former operation elsewhere The point for emphasis, however, is this that there must have been something in the clinical picture which in all cases save three led the physician to doubt in some measure the existence of malignancy

Age —In this group of seventeen the youngest patient was 40 years of age and the oldest 73 The average age was a little less than 54 years There were five between 40 and 49 years, eight between 50 and 59, three between 60 and 69, and one was over 70 The time of greatest frequency was from 45 to 60 years, nine, or more than half, occurring in this period

Sex —Five patients were females and twelve males

Occupation —This is of fraternal interest only in that three of the patients were surgeons

Weight.—In general, the type of patient was uniform An inclination to at least an "enviable" obesity was noted Even though the patients were neither tall nor heavy, the ratio of weight to height was increased In seven instances the weight was accurately noted and its average was 180 pounds Three more were described as stout Only one patient weighed less than 150 pounds and, though short of stature, was not lacking in a suggestion of abdominal rotundity

Nutrition —In all but three instances the nutrition was noted It was either good or excellent By this it is meant that the patients were well nourished and of sound flesh and good color The loss of weight varied from 5 to 30 pounds and averaged less than 10 pounds, and those showing marked loss of weight were originally very heavy

Pain —Fourteen of the seventeen patients gave a history of abdominal pain of considerable severity, two of very slight pain, and one of a sense of uneasiness, distress and gas in the region of the navel and across the lower abdomen In eight the pain was crampy in character and of varying severity, in seven it was spoken of as an ache and differently described as dull or deep or as a distress or pressure, while in two tenderness only was complained of Nine, or a majority of the patients, gave a history of very definite localization to the course of the descending colon and sigmoid flexure at various times. In eight of the cases however the pain was never thought by the patient to localize itself definitely in the left lower quadrant but was referred to the lower abdomen, though examination invariably demonstrated that the tenderness was definitely in the left iliac fossa. All of the females, five in number, and two males gave a history of pelvic pain also. In these seven the mass was found to be adherent in the pelvis, and in one it was partially intussuscepted into the rectum.

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* Read in the Section on Practice of Medicine of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City June 1912.

[1] Mayo, Wilson and Giffin Surg, Gynec and Obst, July 1907 Wilson and Giffin Am Jour Med Sc, November 1910 Wilson Ann Surg, February 1911 Giffin Ann Surg, April 1911

[2] Graves Boston Med and Surg Jour March 16 1911

[3] McGrath Surg Gynec and Obst June 1912

The total duration of abdominal pain varied from twenty days to five, eight and twelve years. In this great variability in the length of the history of pain the condition resembles other inflammatory lesions of the abdomen. In ten, or a majority of the cases, the total duration of abdominal pain was longer than one year. In two it was less than one month, in five less than a year.

In ten instances attacks of low abdominal colic had occurred and were of moderate severity in all but two, in these they were extreme. Seven had had no attacks, and the complaint was of a more nearly constant character. In those cases having attacks of pain, the duration of the attack varied from a few hours to a few days, most of the attacks lasting from two to four days.

In eight instances a history of abdominal pain preceded the discovery of a mass by periods varying from three months to twelve years. In five of these the period was longer than one year and in four longer than two years. If it can be determined with a reasonable amount of certainty that there is a long history of abdominal pain, especially occurring in attacks and with definite localization, this may be regarded as evidence in favor of a diagnosis of inflammatory lesion. If, in addition to this, there is a history of the previous formation of a mass and its subsequent disappearance the diagnosis is strongly confirmed. One of our patients gave a history of having noted a mass with an attack eight years previously and this had disappeared.

Vomiting, Diarrhea and Constipation.—Vomiting was not an important symptom. It occurred in three cases during attacks of colicky pain. Similarly diarrhea was noted twice and then for a few days only at any one time. Constipation was complained of in a majority of the cases and was of more than moderate severity in nine of the seventeen. In eight of these it seemed to amount to a chronic obstruction from the clinical standpoint. Pathologically eight showed evidence of moderate or marked narrowing of the bowel, five a slight narrowing. No instance of acute obstruction was seen.

Manual Examination.—In all cases a mass could be felt in the left lower quadrant or in the pelvis. In males the bimanual examination by rectum enables one to obtain a very clear idea of the size and outlines of the tumor. In women the left pelvic mass was a constant finding and in one case it was adherent low in the culdesac.

Blood Count and Temperature.—Leukocytosis might be considered as evidence in favor of diverticulitis. In three cases only was the leukocyte count recorded. It was 13 000, 14 000 and 20 000. In eight cases a reasonably accurate estimate of the fever during attacks of abdominal pain could be obtained from the patient. It varied from 99.5 to 104.

Bladder Examination.—In three instances only were vesical symptoms noted. One patient had complained of frequency and tenesmus for two years. Feces and gas had been passed by urethra for one year. The cystoscopic examination revealed two fistulas in the roof of the bladder which, from their appearance seemed to be inflammatory. They were neither rigid nor indurated. This evidence helped materially in making a correct diagnosis of the condition. The other two patients complained merely of difficulty in starting the flow or of imperfect control.

Rectal Examination.—The proctoscopic examination was negative in all cases of simple inflammatory lesion save one in which the tumor had become partially intussuscepted into the rectum. The instrument was inserted from 6 to 15 inches in seven of the cases. The fact that pathologically there is no ulceration within the bowel in most of the specimens makes it unlikely that definite changes can be recognized even when one is able to insert the proctoscope sufficiently far. X-ray plates of the colon after the injection of bismuth from below were negative in two cases.

Blood in the Stools.—A fact of the greatest importance in the differentiation of diverticulitis of the sigmoid from carcinoma seems to be a history of the absence of the frequent passage of microscopic blood and bloody mucus in the stools. The occurrence of bleeding and its constancy in carcinoma are so striking that more emphasis than otherwise may be placed on its absence in diverticulitis. Carcinoma is essentially a mucosal involvement, whereas the most constant process in the cases is extramucosal, a true peridiverticulitis. Of the seventeen cases reviewed, one only gave a history of macroscopic blood and in this instance there was a partial intussusception of the sigmoid into the rectum which alone would satisfactorily account for the variation.

The preceding discussion refers to the group of seventeen cases of non-malignant lesion of the sigmoid. The remaining five cases of diverticula of the sigmoid showed carcinomatous degeneration and gave a history of abdominal pain for nine months, one year, four, five and twelve years, respectively. Three of the group gave a long history, suggesting the possibility of a preceding inflammatory lesion. The frequent passage of microscopic blood occurred in all but one of the five cases showing malignancy; in this one there was marked chronic obstruction.

In the two cases in the colon near the hepatic flexure the clinical histories were in no way definite. One was carcinomatous. The two cases in the rectum gave symptoms and findings suggesting carcinoma. One specimen on pathologic examination did not show carcinomatous degeneration. Here again the patient having a simple peridiverticulitis presented a mass which was very hard and adherent and gave no history of the passage of microscopic blood while the duration of the symptoms was three years. The patient having a carcinomatous lesion gave a seven months' total length of history with the passage of blood during this period.

The one case of diverticulitis of the anal ring was clinically in all respects similar to anal fistula.

Five of the twenty-seven patients died, one of these of cerebral hemorrhage forty days after operation and another of nephritis on the twenty-first day (autopsy). The direct mortality was therefore three, or approximately 11 per cent.

COMPARISON WITH CASES REPORTED

A review of the literature has been made for the purpose of comparing the [illegible] here obtained with own observations. A satisfactory description of diverticula demonstrated at operation or in the surgical or post-mortem specimen in addition to a clinical history was essential in order to make the review of definite value. These requirements were not met by most of the reports and consequently it was possible to obtain only thirty-six cases for tabulation, and in most of these the clinical data were not complete. The age of the patient, the character of the pain, the nutrition, and the demonstration of a mass correspond very closely to the findings in our own series. Twenty-four of the thirty-six patients were between 45 and 60 years of age. Six instances of acute perforation with general peritonitis occurred. In twenty-seven of the remaining thirty, a mass in the left iliac fossa was demonstrated clinically. In only three of the thirty-six was a history of macroscopic blood in the stools noted. In three it was definitely stated that no blood had been seen, and it is likely that so important a point would generally be recorded if positive.

Similarly, for purposes of comparison, 100 consecutive histories of carcinoma of the sigmoid from our own files were reviewed. Of this number seventy-four gave the frequent passage of blood and mucus in the stools as a most prominent and constant symptom; in seventeen no definite statement was made, while in nine, with severe obstruction, it was stated positively that blood and mucus had not been seen.

SUMMARY

In the light of these findings, then, it would seem that a probable clinical diagnosis of diverticulitis of the sigmoid may be made in certain cases. Given a patient with a tumor of the sigmoid, the points in the evidence which would favor a diagnosis of the chronic proliferative type of diverticulitis are as follows: (1) the absence of those shadows of malignancy in the general picture; (2) a tendency to obesity and the maintenance of good nutrition, (3) a *long* history of attacks of low abdominal pain localizing in the left lower quadrant, (4) a history of the former formation of a mass and its subsequent disappearance; (5) a failure to obtain a more or less continuous history of the frequent passage of macroscopic blood in the stools; (6) the demonstration of vesical fistulas which, on cystoscopic examination, appear to be inflammatory, and (7) the failure to demonstrate malignancy positively by sigmoidoscopic examination.

In carcinoma of the lower bowel there is usually an early loss of flesh. Pain is not a prominent feature until obstruction advances and the mass is often found before pain has been complained of at all. Tenderness to pressure is a late finding. The relative frequency must also be kept in mind. In our experience carcinoma of the sigmoid has been only seven times as frequent as diverticulitis.

The other inflammatory forms of perisigmoiditis cannot be positively differentiated. A diagnosis of appendicitis in cases of transposition of the viscera should not be difficult. If non-rotation of the colon exist, a radiographic or fluoroscopic examination after a bismuth meal would be necessary. It must not be forgotten that a pelvic tumor may be a sigmoidal tumor and the possibility of diverticulitis is to be considered. Pelvic inflammatory disease may be closely simulated. In fact, diverticulitis should be carefully considered in the diagnosis of all tumors of the left lower abdominal quadrant and of the pelvis.

NOTE.—I am indebted to Dr. Alexander Archibald for assistance in the tabulation of histories.

ABSTRACT OF DISCUSSION

DR. ALFRED STENGEL, Philadelphia: I think that the condition described is more common than is generally thought. I remember a patient from Philadelphia who was operated on in my presence by one of the Mayos in Rochester, Minn. Since that time I have seen at least half a dozen cases. The possibility of diagnoses in these cases I think should be more carefully considered. The case which led to the first publication by Dr. Mayo and his assistants showed the difficulty in making a diagnosis of cancer of the sigmoid; there was found a tumor in the region of the sigmoid. The onset of the trouble was very acute and followed after a condition of perfect health. There was an absence of usual conditions; there was no blood or mucus, in the stools. There was sufficient evidence, however, to arouse a doubt as to the presence of cancer, notwithstanding the age of the patient and the presence of a tumor.

Operations have been performed on patients who presented a definite tumor and there has been found only a diverticulum filled with fecal matter, and sometimes an inflammatory mass. The mucous membrane itself shows no ulceration or any surface lesions. I have no doubt that many of these cases go on to abscess formation or to a spontaneous discharge of pus from the bowel. I have in mind a case that was under Dr. Deaver's care in Philadelphia. A man was seized with symptoms, especially pain in the left lower quadrant of the abdomen at which point a mass developed. The patient apparently made a good recovery after the discharge of pus from the bowel. This is not a proved case, but taken in conjunction with what subsequently arose, it teaches that we should not temporize with regard to any surgical procedure, these cases are very formidable. In many cases there is required a removal of a large portion of the sigmoid flexure or the descending colon, and these are not trivial operations by any means. One of my patients who was operated on, showed a diverticulitis at necropsy.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY COMPRESSION OF THE LUNG *

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Some of the foremost specialists in Europe are treating pulmonary tuberculosis by injecting nitrogen into the pleural cavity until sufficient pressure is obtained to drive the lung up into the smallest possible mass. The lung is then held well compressed by the nitrogen until it heals, when the nitrogen is absorbed and the lung reexpands and resumes its functions.

The method has been used in advanced and hopeless cases when nothing else availed, cases that at autopsies show the well-remembered typical picture of such conditions. There are the white, gaping cross-sections of thickened bronchial and vessel walls held out by the caseous, greenish, blackish infiltrations through which constantly ooze the liquefying contents of an infinitude of disintegrating foci. How is it possible for such a lung to recover? If we could tie off the vessels and remove the whole mass of poisonous materials the patient might live. Whatever surgery may do in the future, it does not at present attempt the removal of an entire lung. To-day the best we can do to imitate surgical methods is to fill the pleural cavity with nitrogen until the lung is so closely compressed that it is practically obliterated and removed.

In uncomplicated cases the compression of the lung is not a difficult undertaking and requires no surgical skill or training. A fine hypodermoclysis needle may b thrust through the tissues into the pleural cavity and the nitrogen injected just as any solution would be injected. This was done by Forlanini,[1] who first proposed the method in 1882. In 1898 Murphy[2] published his independent conception of the same theory. Murphy made a small incision through the skin, and pierced the pleura with a medium-sized, blunt aspirating needle.

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* Read in the Section on Practice of Medicine of the American Medical Association at the Sixty-Third Annual Session, held at Atlantic City, June, 191

Brauer[3] makes a free incision, retracts the tissues and examines the surface of the pleura. If it is smooth and glistening and the motion of the lung beneath is seen, the pleura is pierced with a blunt Salomon catheter. This is the only safe way to produce a pleural cavity. If the operator cannot see where the point of the needle is, he may make mistakes that will cost the patient dear. It may be that the needle pierced only the endothoracic fascia and did not go on through the pleura but stopped in the endothoracic space, and if the nitrogen is turned on it will cause an emphysema running up into the neck and face, down the arm and into the fingers, over onto the other side or down to the hip. The needle has been known to enter the abdominal cavity, a band of pleural adhesions, the interstices of the lung, a bronchus or a blood-vessel.

Saugman used a manometer to show the changes in intrapleural pressure caused by different positions of the chest-wall. When the chest-wall is pulled away by inspiration, the pressure in the pleural cavity falls. As the chest-wall sinks back, the intrapleural pressure rises. If the manometer does not show these respiratory changes in pressure, the needle is either stopped or it is not in the pleural cavity. The danger of gas embolism is so great that the nitrogen should never be turned on unless the manometer shows good respiratory excursions. How much nitrogen shall be used and how often must it be put in?

A standard of pressure is established in each case and then is maintained as evenly as possible. To heal to the best advantage, a lung must be kept from expanding and therefore a good deal of pressure is necessary and desirable. If too much pressure is used, the digestion, the circulation and the nervous status of the patient may suffer. No more pressure may be used than can be well borne by the mediastinal pleura; if this stretches, then extra pressure does not mean compression of the lung but bulging of the mediastinal pleura over to the other side, and this causes distress and impedes the action of the other lung. If the pleura yields and allows the nitrogen to escape it will oppress the heart, choke the throat and alarm the patient. The pressure may also force the nitrogen back through the track of entry and cause subcutaneous emphysema, sometimes remarkable in their extent.

If 4 cm. of positive water-pressure is found sufficient to keep the lung well compressed and is well borne by the patient, just enough nitrogen is put in to bring back the amount of pressure to the standard. A record curve is kept of the pressure and an attempt is made to have this as even as possible. To do this the fillings must be made frequently until the pleura begin to lose the power of absorption, because while this continues there is a steady loss of nitrogen with a corresponding fall in pressure and tendency on the part of the lung to expand. If the loss of pressure is insignificant the interval is lengthened; if it is too great the interval is shortened.

RESULTS OF COMPRESSION

As the lung gets smaller and smaller, the walls of cavities and abscesses are closely approximated and their foul, decomposing contents are forced up through the bronchial tubes and out through the mouth. The pressure of the nitrogen squeezes out the filthy poisonous contents of the lung and makes it clean and dry, just as you would squeeze water out of a sponge.

The two factors on which the recovery of a compressed lung depend are these: First, the lung is made clean and dry and kept so; second, fibroblasts shoot out from the injured walls of bronchi and vessels and organize tuberculous lesions into scars, thus obtaining an anatomic recovery of the most durable nature. Autopsies have shown that in such recoveries the suppurating walls of abscesses and cavities appear only as linear scars, and throughout the whole of the lung not a trace of active tuberculosis can be found.

As the tuberculous processes are extinguished and no more toxins are produced the temperature becomes normal, the night sweats cease and the cough lessens. In uncomplicated cases the results are comparable to the drainage and cleansing of any other surgical condition, and often they are equally precise. We have had at Highlands Camp Sanatorium seven cases of high temperatures which had persisted for from six to eighteen months and which nothing could reduce; after a few weeks of compression the temperature has remained persistently normal. A common result is the disappearance of tubercle bacilli so that there is no more danger of infection either to the patient or to his surroundings.

When should the method be used? If all else has failed, if symptomatic and tuberculin treatment cannot arrest the process, then the attempt to save the patient by compressing the lung would seem to be amply justified. The contra-indications are, any complication sufficient in itself to inhibit recovery and too great an involvement of the other lung.

Over 600 cases have already been reported with about 40 per cent. of recoveries. All of these were advanced and hopeless cases and the causes of failure were not so much in the method itself as in the inability to use it. The pleural surfaces may be so adherent that a pleural cavity cannot be produced. A small pocket may be gradually enlarged or resist all pressure. Pleural bands may hold the lung out so that it cannot be compressed and the pleural vessels may be so engorged and multiplied as to resemble a malignant neoplasm.

Even if we succeed in compressing the lung we may have to give up the attempt because a tuberculous process flares up in the other lung or in the intestines or kidneys. There is danger of injuring the lung and causing an abscess, and of infecting the pleura when the needle is withdrawn. Empyema may be caused by infection of the track of entry. Gas embolism, the greatest danger of all, may be avoided by Brauer's method and careful attention to the manometer.

What does the method accomplish and by what means? The pressure of the nitrogen immobilizes the lung and gives it complete rest; the edematous infiltrations characteristic of pneumonic and progressive cases are restrained. There is a vigorous connective-tissue infiltration that secures an anatomic recovery of the most durable nature, so that the danger of a relapse as far as the compressed lung is concerned is minimized. The bilious attacks and colds that so often retard recovery do not affect a compressed lung, so that each day adds its quota of recovery. In typically successful cases the results are almost spectacular. The temperature falls, the cough lessens, the tubercle bacilli disappear, and the patient gains in weight and strength. Patients with high fever, drenching night sweats, profuse, purulent expectoration, profound cachexia and exhaustion are saved as by a surgical operation.

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[1] Forlanini, C.: Primi tentativi di pneumotorace artificiale nella tisi polmonare, Gazz. med., 1894.

[2] Murphy, J. B.: Oration on Surgery, The Journal A. M. A., July 23, 1898, p. 151.

[3] Brauer, L., and Spengler, Lucius: Beitr. z. Klin. d. Tuberk. (Brauer's), 1910, xiv, No. 1.

We have had thirty-one cases. Six patients are dead and three have not been under treatment long enough to afford data to report; ten are still uncertain, five because of lack of time; ten are improving, and in two cases the lung has expanded, resumed its function, and there have been normal breath sounds and resonance for over a year.

ABSTRACT OF DISCUSSION

Dr. Samuel Robinson, *Boston*: I have been much interested in the treatment of pulmonary tuberculosis by compression of the lung from a surgical point of view. In twenty of the forty-five cases in which I have performed injections I have made an incision of the pleura. I regard the needle method as a simple procedure and one which should be employed by internists. Dr. J. B. Murphy of Chicago described this treatment in 1898; the late Dr. Lemke continued the work and reported a series of cases; the Germans and Italians have been employing the method since 1900.

Dr. Lapham's enthusiasm about the method might exert an undue influence. I do not think that we should be led to believe that 40 per cent. of the cases of the second stage tuberculosis are cured by this method. Without doubt, the disease is arrested in a certain number of patients, but I cannot believe that the percentage is as high as stated by Dr. Lapham. I have had considerable experience with this treatment and am impressed with the systematic relief almost universally resulting. Tuberculin has in many ways been disappointing and it is fair to say that the pneumothorax treatment offers more chances of relief than any other treatment in this group of cases. Success depends largely on perseverance both of the physician and the patient, and it is *not* advisable to start the treatment except with the promise of continued cooperation.

My surgical experience in the thorax has developed in me a greater respect for the pleural cavity than that possessed by many internists. The needle should be introduced with the greatest caution and a manometer used as a guard against air embolism. Respiratory excursions should be carefully watched. The pleuræ are always opposed if not adherent and the needle therefore must stop at just such a point in order that the nitrogen may enter the pleural spaces. Frequently it must be withdrawn and another site selected. From a surgical point of view I recommend this method and believe it to be a safe procedure in the hands of competent persons.

Dr. S. Adolphus Knopf, *New York*: It should be remembered that in speaking of any new and untried treatment it is unwise to neglect to speak of the importance of the hygienic, dietetic and climatic treatment of a disease like pulmonary tuberculosis. Perhaps it was merely lack of time that made Dr. Robinson omit these essentials of modern phthisiotherapy. I have been overwhelmed with awe and admiration while hearing the wonderful report of 40 per cent. of cures in advanced cases of pulmonary tuberculosis! To hear such a report is surely a delight to anyone who works with this class of cases. My own statistics are far, far lower. I have never had nor ever heard of such results. We must, however, pause for a moment and consider the meaning of the word "cure." At Washington last week one of the most interesting subjects that were brought up for discussion was the word "cure" as applied to pulmonary tuberculosis and whether it should be accepted at all. "Why not speak only of arrested cases?" said some. "There is no such cure," said another. The term "arrested" seemed to be considered a safer expression than "cured." While I would not wish to abandon the word "cured" in our nomenclature I agree with those who said that we should be very careful before using the words "absolute cure" in pulmonary tuberculosis. It would seem best not to speak of absolute cure unless the patient has remained for at least two years without tubercle bacilli in the sputum, without any physical signs except those which are caused by cicatrized condition in the lungs and, of course, with no cough and with freedom from all other symptoms. When it is said that cures are obtained within three or four months in 40 per cent. of advanced cases by the method described, I am a little apprehensive, and I should like to ask Dr. Lapham just what she means by "advanced cases" and by "absolute cures." As a rule the advanced cases are bilateral. I do not think that I would like to inject nitrogen gas in cases in which both lungs are involved. I would be willing to try this treatment when assured that the diseased condition is confined to one side. I would also be willing to try it in an uncontrollable hemorrhage *which can be localized*, but I do *not* think we can resort to artificial pneumothorax as a routine treatment.

While I do not wish to be misunderstood in questioning the accuracy of the statements of Dr. Lapham, which are remarkable and probably due to a very wise selection of cases, I plead for conservatism in making public such statements as that with the new treatment 40 per cent. of absolute cures can be obtained. We need much, much more experience with artificial pneumothorax, more data by many observers before we speak numerically of results in a condition so difficult to treat and to cure as pulmonary tuberculosis in advanced stages.

Dr. Charles L. Minor, *Asheville, N. C.*: The conservative attitude taken by Dr. Robinson is wise, for too great claims for the new procedure now would only retard its acceptance. It seems to me that the procedure offers us an excellent means of ameliorating the condition in advanced and hopeless cases for which we can now do nothing. Even if we do not take as optimistic an attitude as Dr. Lapham as to the results the method can yield, it should still be a great addition to our resources.

Dr. Francis M. Pottenger, *Monrovia, Cal.*: This method of treatment is one that offers relief to a certain class of patients which has hitherto baffled our skill. I would not expect, however, to cure in 40 per cent. of hopeless cases. Cases for artificial pneumothorax should be carefully chosen and the operation should be done with caution. I believe it is possible by this method to make more comfortable and prolong the lives of a certain percentage of patients.

I have been watching this operation with great interest for several years and while I have not come to its use, I am convinced that it has considerable merit in certain cases. To become too enthusiastic is dangerous to any measure or remedy. In the use of this method we must not forget that there is suddenly thrown on the heart a considerable increased burden and that it is the heart that bears the brunt in tuberculosis. The shutting off of a large portion of lung tissue in patients who are already seriously crippled because of lack of lung increases the burden on the heart in a manner that cannot be looked on otherwise than seriously. Therefore it seems to me that the suggestion made by Dr. Robinson that the gas should be injected cautiously and not too much at a time is very timely. It certainly would be most unfortunate to collapse one lung entirely if the other was not in good condition.

I feel that there is no place for pessimism in the treatment of tuberculosis. Those of us who followed this work in recent years have certainly seen enough to make us optimistic; at the same time we must keep our optimism tempered with judgment and realize that we may do all that a remedy and measure can do and still not cure the patient. We should consider this method carefully and watch the result of its employment both as to its immediate effect and its after consequences before giving judgment.

Dr. Mary E. Lapham, *Highlands, N. C.*: Dr. Robinson has spoken of the difficulties attending the compression of the lung. If you will read the reports I think you will agree with me that the cause of failure is not in the method itself but in the inability to use it. The pleural surfaces may be too adherent to produce a pleural cavity, or possibly only a small pocket can be formed which pressure cannot distend, or the surface of the lung may be so held out by adhesions that it cannot be compressed, or the pleural vessels may be so multiplied and engorged as to constitute a veritable angioma fairly comparable to a malignant neoplasm. In these cases the lung cannot be compressed because we have waited too long. Even if we are able perfectly to compress the lung and obtain good results, we may find later on that the attempt must be relinquished because an unsuspected process flares up in the intestines or in the other lung. Once more we have waited too long and the method fails because it is too late. I fully agree with Dr. Knopf as to the value of hygienic and dietetic treatment. I used the word "symptomatic" as it is used in Switzerland, meaning thereby all measures that are not medical or surgical. We have had four bilateral cases in which we compressed the second or last lung attacked. The process had dragged itself through the first lung scarring as it went, but the second lung broke down into disintegrating foci. We compressed the cavities of these second lungs with marked success while depending on the functional capacity of the scarred first lung. The action of the heart must be carefully watched. It is often distressed at first but eventually benefited. One of the four patients had a pulse of 140, very irregular and intermittent. The patient was cyanotic and suffered a great deal from crises of dyspnea. During the first forty eight hours after nitrogen was injected there was a good deal of pain and sleeplessness but after that the pulse began to be less frequent and stronger and within two weeks was 84, and at present is 72. The respirations, which were 36 to 40, are now 22. In this second lung there were three cavities and the patient was exhausted by the continuous efforts to empty them. These cavities are well compressed and the patient is only expectorating about a teaspoonful in the morning, after which he hardly coughs at all through the day.

BACTERIOLOGY OF EPIDEMIC SORE THROAT*

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In view of the wide-spread interest in the so-called septic sore throat prevailing in epidemics in various centers of the country, and in view of the fact that a diversity of opinion seems to exist as to the bacterium causing the infection, some describing the organism as a pneumococcus, others as a "peculiar streptococcus," it seemed important to record the morphologic and cultural characteristics of the organism isolated during the recent epidemic in Baltimore.

Outbreaks of sore throat attributed to milk and cream have been reported in England since 1881, of which a good résumé is given by Swithbank and Newman,[1] who conclude: "We think it safe to assume that a year never goes by in which there are not outbreaks of sore throat or tonsillitis due to cream or milk." In this country, however, only a few epidemics have been reported.

As the symptoms and complications have been described during these outbreaks, reference will be made only to the bacteriologic findings.

In 1897, a small epidemic occurred at Anglesey,[2] at which time the milk was examined bacteriologically and staphylococcus and *Streptococcus pyogenes* were found.

In 1902, during the epidemic occurring at Lincoln,[3] Dr. Klein isolated a "special organism"[4] from the throat by means of swabs.

In 1911, during the Boston epidemic, Dr. Darling[5] reported that many cultures were taken from throats as well as from secondary foci of infection and that the "organisms usually found were streptococci, often associated with staphylococci or pneumococci."

During the past winter an epidemic occurred in Chicago and Baltimore. In the former Dr. Rosenow and Dr. Davis[6] isolated an encapsulated hemolytic streptococcus, occupying a position between the ordinary hemolytic streptococcus and the *Streptococcus mucosus*, which always acidified and sometimes coagulated milk. In the Baltimore epidemic, Dr. Hamburger[7] reported the finding of a non-capsulated streptococcus which always coagulated milk. During the same epidemic Dr. Hirshberg[8] reported forty-three cases which he attributes to an infection by the pneumococcus.

A few cases from sources which could leave no doubt as to the etiologic relationship of the organisms isolated would be more important than a large series of throat cultures in which a mixed infection would make it difficult to determine which organism caused the disease. Opportunities were offered to obtain cultures from the peritoneum, blood, suppurating glands and peritonsillar abscesses. A short history of these cases and the source of the cultures is therefore deemed expedient.

CASE 1.—A young woman aged 37 had a rather mild attack of tonsillitis with patches on the throat. The glands of the neck were enlarged to about the size of the end of the thumb. To the patient the temperature never seemed over 100, and the throat and glands seemed to get better after an illness of four days' duration. On the sixth day, however, the patient was seized with acute general cramp-like pains in the abdomen accompanied by nausea. She was therefore taken to the hospital.

On admission the temperature was 104 and the leukocyte count 17,700. The throat was reddened, especially the pillars; the glands were enlarged and tender. The heart and lungs were clear. The abdomen was slightly distended, moving very little on respiration; there was general rigidity and tenderness with no localizing area. An exploratory operation was performed twenty-four hours after admission to the hospital. A general acute peritonitis was found. Two days later the patient died. Culture was obtained from the peritoneal exudate.

CASE 2.—A child aged 2 had an illness beginning with sore throat and swelling of the lymph nodes in the neck. Three days later the abdomen became swollen and the patient suffered from pain and obstinate constipation. The temperature ranged from 101 to 105. The following day the abdomen was still tender and rigid, peritonitis was apparent and the patient's condition seemed desperate.

On the fifth day the patient was taken to the hospital. There was a scarlatinal rash over the chest, abdomen and back. Operation was deemed inadvisable but a blood culture was made from the arm and a pure culture was obtained on blood agar, milk and glucose bouillon. The child died on the afternoon of the fifth day.

CASE 3.—A child aged 2½ had an illness which began with a sore throat. Three days later the tonsils were enormously swollen and the cervical lymph nodes were very large. The throat gradually improved and most of the lymph nodes subsided. One gland on the right side just above the middle of t clavicle suppurated and was opened twenty-three days after the onset of the disease. A pure culture was obtained from the pus of this gland.

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* From the Medical Clinic, Johns Hopkins Hospital.

[1] Swithbank and Newman: Bacteriology of Milk, 1903, London.

[2] [illegible] C. and Severn, Walter D.: Brit. Med. Jour., 1897, ii, 330.

[3] Brown, W. H. B.: Lancet, London, [illegible]

[4] Unable to find any other reference in the literature.

[5] Darling, E. A.: Boston Med. and Surg. Jour., 1911, clxv, [illegible]

[6] Rosenow, E. C., and Davis, D. J.: The Journal A. M. A., March 16, 1912, p. 77[illegible]

[7] Hamburger, L.: The Journal A. M. A., April [illegible], 1912, [illegible]

[8] Hirshberg, L. K.: The Journal A. M. A., [illegible] 1912, p. [illegible]

CASE 4.—In an adult illness began on March 9 with chilliness, headache, nausea and slight sore throat, which was inflamed and showed follicular patches. Three days after onset the condition became much worse, the throat very sore and the patient had difficulty in swallowing. There was marked edema of the peritonsillar tissue and the glands of the neck were much enlarged. The throat was incised in several places on the fifth day and a pure culture was obtained from the serous fluid.

CASE 5.—A child aged 3 months when first seen had red edematous areas over both shoulders about 2 to 3 cm. in diameter. The shoulder joints were not involved but the neck was stiff. These masses were more edematous than red, and a surgeon was called in consultation. Three days later the left elbow became involved and in two days more the swelling had extended to the wrists and by this time had a well defined margin. The case terminated with multiple abscesses in the axilla and wrists from which pure cultures were obtained. The temperature was never very high, nor was a history of sore throat recorded.

BACTERIOLOGIC FINDINGS

The strains isolated were compared with two known strains of pneumococci, with two strains of streptococci isolated from puerperal infections and with a strain of streptococcus obtained from the cerebrospinal fluid in a case of meningitis following otitis media. Table 1 gives a summary of the bacteriologic findings.

Morphology.—In smears obtained from the surface of a twenty-four-hour growth of blood agar slants, the cocci appeared as spherical or flattened pairs, often forming short chains. Five strains of pneumococci obtained from cases of lobar pneumonia and five strains isolated during the epidemic from the cases described above were inoculated into glucose bouillon. Smears were made at the end of twenty-four hours and care was taken not to break up the chains by manipulation on the slide. None of the pneumococcus strains appeared in chains longer than six pairs and were usually in twos. The strains isolated during the epidemic formed long twisted chains of fifty pairs or more in some instances. In keeping with this finding is the behavior in bouillon as shown in Table 1. The *Streptococcus brevis* and the pneumococci produce a uniform turbidity in bouillon, while the *Streptococcus longus* leaves the bouillon clear with a flocculent precipitate at the bottom of the tube.

All the [illegible] strongly Gram positive.

Capsules were demonstrated in three strains (Cases 1, 2 and 3) even after they had been on artificial mediums one month. These capsules were distinctly of the streptococcus type as described by Buerger.[9] Cases 4 and 5, and the two strains isolated from puerperal infections by means of blood-cultures did not give capsules in cultures which had been on artificial mediums for one month.

No attempt was made to determine the minimal lethal dose chiefly because thus far there has been no established standard of virulence for streptococci, and it was felt that nothing could be gained along this line. Animals, however, were inoculated with each strain to see if capsules could be obtained by passing the strains through an animal and staining the smears obtained from the heart's blood. An emulsion was made from a twenty-four-hour growth of an average blood-agar slant in 1 c.c. of sodium chlorid, and 0.2 to 0.3 c.c. inoculated into mice subcutaneously. Mice inoculated with organisms from Case 4, and Streptococcus C and Streptococcus J, respectively, died within twenty-four hours. The mouse inoculated with organisms from Case 4 showed very few organisms in the blood. No capsules could be demonstrated. The mouse inoculated with organisms "Streptococcus C" showed numerous capsulated cocci in the blood. The mouse inoculated with organisms 'Streptococcus J' showed numerous organisms in the heart's blood but no capsules could be demonstrated by any method. A mouse inoculated with organisms from Case 5 died in four days. Numerous organisms were found in the heart's blood, but no capsules could be demonstrated. A mouse inoculated with culture of Streptococcus B died in four days. Few organisms were found and no capsules could be demonstrated. A twenty-four-hour growth of a small blood agar slant of cultures from Cases 1 and 3 was inoculated intravenously into rabbits weighing 1,300 gm. each. A rabbit inoculated with organisms from Case 1 died in two days. A few capsulated organisms were found in the heart's blood. A rabbit inoculated with culture from Case 3 died in four days. Numerous organisms were found in smears from the heart's blood. Capsules were readily demonstrated, showing the streptococcus type of capsules.

Cultural Characteristics.—On blood agar plates, a clear zone of hemolysis was produced several millimeters in diameter. There never was a suggestion of green tinge

TABLE 1.—SUMMARY OF BACTERIOLOGIC FINDINGS

Strains.	Milk Acid	Milk Coagulated	Bouillon Turbid.	Bouillon Clear with Floc Sed 48 Hours.	Growth in Gelatin at Room Temperature	Hemolysis on Blood Agar Plate	Morphology in Glucose Broth	Capsules in Cultures Isolated 4 Weeks.	Capsules from Heart's Blood	Precipitation on Glucose Serum Agar	Fermentation of Inulin	Per Cent. Acid Formed in 72 Hours				
												Glucose	Lactose.	Raffinose	Mannit	Salicin
Pneumococcus B	+	+	+	0	0	0	Usually pairs	+	+	0	+	1.1	1.4	1.1	0.0	
Pneumococcus C	+	+	+	0	0	0	Only pairs	0	+	0	+	1.1	1.4	1.1	0.0	
Streptococcus I	+	0	0	+	+	+	Long chains	0	0	+	0	1.2	1.0	0.0	0.1	+
Streptococcus J	+	0	0	+	+	+	Long chains	0	0	+	0	1.0	0.8	0.0	0.0	0.0
Streptococcus C	+	0	0	+	+	+	Long chains	0	+	+	0	1.2	1.0	0.0	0.0	0.0
Case 1	+	0	0	+	+	+	Long chains	+	+	+	0		0.8	1.0	0.0	0.0
Case 2	+	+	0	+	+	+	Chains of 50 prs	+	+	+	0	1.1	1.0	0.0	0.0	0.0
Case 3	+	+	0	+	+	+	Chains of 25 prs	+	+	+	0	1.0	1.1	0.0	0.0	0.0
Case 4	+	0	0	+	+	+	Chains of 50 prs	0	0	+	0	1.0	0.8	0.0	0.0	0.0
Case 5		0	0	+	+	+	Chains of 10 prs	0	0	+	0	1.2	1.0	0.0	0.0	0.0

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[9] Buerger, L.: Jour. Infect. Dis., 1907, iv, [illegible]

to the surrounding medium or to the colonies. The colonies were rather larger than one usually finds in cultures of the *Streptococcus pyogenes* and often gave a suggestion of white and rather dry appearance.

On serum glucose agar a marked precipitation occurred with the strains isolated during the epidemic, also with the two strains from puerperal infections and the strain from the cerebrospinal fluid, but none with five known pneumococcus strains.

The reactions in milk are indicated in Table 1.

In bouillon a diffuse clouding occurred at first which at the end of twenty-four hours had largely settled to the bottom into a flocculent precipitate with some flakes floating through the medium. The supernatant fluid became entirely clear in thirty-six hours.

No growth occurred on potato.

All of the cultures grew on gelatin at room temperature except the two pneumococcus strains.

Inulin was not fermented.

None of the strains isolated was dissolved by fresh beef bile.

We thus have a coccus, growing in long chains, producing a clear zone of hemolysis on blood agar, precipitating serum-glucose agar, not fermenting inulin, often possessing capsules of the streptococcus type. All the strains fall into the hemolytic or pyogenes group of Schottmuller.[10]

RELATIONSHIP OF THIS STREPTOCOCCUS TO OTHER STREPTOCOCCI

The question naturally arises as to whether we are dealing with a new type of streptococcus, or whether we are dealing with the usual type of *Streptococcus pyogenes* of a more virulent type.

If we adopt the classification of Schottmuller, the strains isolated fall into the ordinary *Streptococcus pyogenes* group which is characterized by the clear zone of hemolysis which the colonies produce on blood-agar.

If we now wish to separate further this group we may apply the so-called Gordon tests. In 1903-4 Gordon[11] grouped the streptococci by their ability to ferment the various carbohydrates, glucosids and polyatomic alcohols. To these tests he added the clotting of milk and the reduction of neutral red under anaerobic conditions.

In 1906 Andrews and Horder[12] analyzed 228 strains pathogenic for man by applying these tests and adopted the classification given in Table 2.

According to this classification the *Streptococcus pyogenes* group would be divided into two groups:

1. The usual *Streptococcus pyogenes* group which does not clot milk or ferment raffinose.

2. The *Streptococcus angiosus* group which usually clots milk and often ferments raffinose.

The *Streptococcus pyogenes* group is usually associated with suppurations, erysipelas and septicemias.

The *Streptococcus angiosus* group is especially associated with inflamed throats, scarlatinal and otherwise. It is also found in malignant endocarditis [illegible] and otitis. This group also corresponds to the [illegible] *coccus scarlatinæ* of Klien and the *Str*[illegible] *glomeratus* of Kurth.

The *Streptococcus salivarius* and the [illegible] *fæcalis* groups are relatively nonvirulent [illegible] cies obtained from the alimentary [illegible]

These do not cause a hemolytic zone on blood-agar and are often associated with chronic endocarditis.

Andrews and Horder conclude: "We find that we can more readily 'place' a streptococcus and surmise its source and probable virulence by aid of the Gordon tests than in any other way."

Applying to our strains the Gordon tests we find that strains from Cases 1, 2 and 3 either coagulate milk or ferment raffinose, which would place them into the *Streptococcus angiosus* group. Strains from Cases 4 and [illegible], behaved exactly like the ordinary *Streptococcus pyogenes*, i. e., did not coagulate milk or ferment raffinose. Our Case 5 may have been one of atypical erysipelas, but the clinician in charge considered it to be of the type which was associated with the Baltimore outbreak of sore throat.

PRESENCE OF A CAPSULE NOT A SUFFICIENTLY DISTINGUISHING FEATURE

Davis[13] suggested a new classification of streptococci in which he separated the *Streptococcus pyogenes* from the strains isolated during the epidemic. The only distinguishing point is the presence of a capsule which he was able to demonstrate in the epidemic group and which he termed *Streptococcus epidemicus*. That this is not a sufficient distinction is shown by the fact th[illegible] was able to demonstrate capsules in at lea[illegible] of all the strains of streptococci coming to [illegible] during routine examinations. Strains [illegible] others mostly often have capsules [illegible] Streptococcus C of this series [illegible] the [illegible] majority of cases have this [illegible] which evidence has been [illegible] strains were pneumoc[illegible] from the beh[illegible] isolated and from [illegible] seem to be [illegible] the *Strepto*[illegible] of the str[illegible] from [illegible] of [illegible] ent com[illegible] of [illegible] ms [illegible] mk [illegible] much [illegible] the [illegible] ed by [illegible] erhaps [illegible] evidence [illegible] ion life [illegible] tion and [illegible] growth [illegible] al reaction [illegible] he [illegible] of [illegible] and I am [illegible] I show that [illegible] st [illegible] the [illegible] bid

TABLE 2.—CLASSIFICATION OF HORDER*

	Milk Clotted	Acid in Saccharose	Acid in Lactose	Acid in Raffinose	Acid in Inulin	Acid in Salicin	Acid in Mannite	Growth on Gelatin at 20 C	Morphology in Broth	Hemolysis on Blood Agar	Pathogenicity for Mice
S. pyogenes	0	+	+	0		±		+	†	+	+
S. salivarius	±	+	+	±		±		±		0	
S. anginosus	±	+	+	±		±		+	†	+	—
S. fæcalis	±	+	+	±		+	+	+		0	
Pneumococcus	±	+	+	+	±			0	‡	0	—

* Horder, T. J.: Quart. Jour. Med., 1908, ii, 28[illegible] Ta[illegible] fied to include the intermediate varieties.
† Longus; ‡ Brevis.

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[10] Schottmüller, H.: München [illegible]

[11] Gordon, M. H.: Report [illegible] 1903-4, xxxiii, 388.

[12] Andrews, F. W., and Horder [illegible] ii, 708, 777.

RHEUMATISM

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If we were able to abandon the word "rheumatism" for more specific interpretation of the actual causes which give rise to a group of symptoms that go to make up the picture of this affection, material advancement would be made in the conception and treatment of this type of human ailments. The terms "neuralgia," "anemia," "dyspepsia," etc., were applied in the early days of medicine, to a certain group of symptoms; many of these vague terms have been replaced by names indicating direct causes of these conditions, and we hope that before long rheumatism will be given a more scientific place in medicine.

In the consideration of rheumatism too much attention has been given to secondary symptoms, as arthritis, endocarditis, pericarditis, etc. There the *materies morbi* has been sought and treatment directed for relief. To make confusion worse, every ache, pain and swelling of the articular structures has been called rheumatism until experience has proved the contrary; some affections of the joints that were not rheumatic underwent resolution, but the diagnosis was never changed. A short time ago I read a very able article by a foreign writer on tuberculous rheumatism. Why should not tuberculous arthritis be called by its real name rather than tuberculous rheumatism? The general use of the word "rheumatism" precludes it being synonymous with arthritis, for we have muscular, cerebral and peritoneal rheumatism. The word "rheumatism" has been badly overworked, and charges mountain-high have piled up against this obscure affection; it has served the interest of doubtful physicians; it has assumed the responsibility of malingering and played the rôle of fraud; it has been a financial pillar for the patent-medicine manufacturer and has upheld the quack; it has been a haven for stupidity and has contributed to the mockery of science.

Rheumatism has always been described as a disease or an affection characterized by certain symptoms. Much work has been done to fix the responsibility on some specific agent but so far efforts in this particular have not been conclusive, though it would seem that opinion is now firmly established that a microbic infection is the cause. The preponderance of evidence, although lacking in positive proof, supports the belief that the group of symptoms called rheumatic fever is caused by infection and in view of all the present facts in connection with the disease no other theory is capable of explaining the phenomena associated with this common affliction. Much valuable labor has been lost in not giving sufficient scope of interpretation to the clinical picture of these cases; too often it has been taken for granted that all articular symptoms of a painful character arise from a common source, and forthwith the case is classified as rheumatic.

The symptoms of articular rheumatism are so constant that a strong belief grew up that there was a single cause, but when the symptoms are examined none of them is found to be pathognomonic. Tuberculous arthritis is often mistaken for rheumatic arthritis; the local picture is practically identical in the beginning and medical history is replete with cases of tuberculous arthritis that have been treated for rheumatism a long time before their true nature was recognized. Gonorrheal, syphilis, osteomyelitis, periostitis from streptococcus or staphylococcus and other infections cause symptoms not easily distinguished from rheumatism. The sour odor of the perspiration in rheumatism has nothing characteristic about it; the sweating is produced by low blood-pressure caused by the absorption of toxins. I think more than a single cause can produce the classical symptoms of rheumatic fever. Some infections no doubt have the power to set up an inflammation more severe in one kind of tissue than in another, and the same infection may on different occasions show itself in a mild and anomalous manner. I have seen typical cases of rheumatism follow infectious tonsillitis; I have seen equally typical cases associated with an enterocolitis. Recently I have treated two cases and seen another in consultation that presented the classical picture of rheumatic fever, and one of the patients developed endocarditis. In all of them the picture was the same; the rheumatic manifestations were secondary to an enterocolitis. The enterocolitis was characterized by considerable abdominal distention without tenderness, the passage of a large amount of intestinal mucus, a tendency to constipation, temperature variable but reaching a maximum of 104, soft pulse and sweating.

INVOLVEMENT OF THE INTESTINAL TRACT

The most noticeable symptom in all these cases was the passage of large amounts of intestinal mucus; the articular symptoms kept pace with it and did not disappear until the mucus had left the stools. During the course of these cases there occurred exacerbations and remissions of mucous discharge, which was associated with an increase and diminution of the rheumatic symptoms, clearly indicating that the intoxication producing the rheumatic manifestations was traceable to the morbid processes going on in the intestinal tract. I regret that it was not possible to make a systematic study of the intestinal dejections during the progress of these cases for the purpose of isolating the nature of the bacteria causing the enterocolitis. One of these cases has remained under my observation; it has been interesting to note that any disturbance of intestinal digestion is associated with arthritic symptoms, and that it is only by a close adherence to a suitable dietary that a painful condition of the joints is avoided. I think that the intestinal involvement in this case would go unnoticed by the patient if she had not been instructed as to the source of her rheumatic symptoms.

A short time ago I saw an elderly man about 80 who had suffered from rheumatism for thirty years. He had been compelled to use crutches and canes to go about for twenty years, and this period of his life had been made miserable by painful and stiff joints. My service in his case was called for the purpose of bolstering up a failing heart, but I obtained a history in his case which afforded material for reflection. He cautioned me not to give him anything that would act as a strong physic for the reason that it would set up a troublesome diarrhea that would be hard to check; he further said that he had been subject to looseness of the bowels for a long time and that food would frequently pass through him undigested and associated with much mucus and rectal tenesmus. His mind was not clear on the question as to the relationship between the rheumatic symptoms and the intestinal trouble except as to their coexistence.

In looking over the literature on rheumatism one is impressed with the little space devoted to the discussion of any direct relationship existing between intestinal disturbances and rheumatic fever. The former is generally treated as a complication of the latter though by implication much importance is attached to their relationship

In the treatment of rheumatism a proper diet is held as essential by almost all authors; in prophylaxis they hold that hygienic and dietary measures should receive first place; specific articles of diet are mentioned as being repugnant to the best interest of these patients and a general admonition is given to avoid any article which is liable to disturb the digestive system. In my experience the subjective symptoms associated with intestinal involvement in cases of rheumatic fever are rarely severe enough to call for much comment on the part of the patient, and unless special inquiry is made into the significance and relative importance of such manifestations, they will be attributed to complications.

In laying so much stress on the primary involvement of the intestinal tract in certain cases of rheumatic fever and the importance of directing the principal treatment to this tube, it would seem that I am dealing with a few isolated cases which should have no weight or influence in the determination of a well-recognized cause. It does not seem possible that the importance of primary intestinal infection in a common disease like rheumatic fever would have escaped the attention of many acute and careful observers, and for this reason I have much timidity on offering it as a sound suggestion; but the infection enters the body at some place and having a tendency to recur it is rational to conclude that a *locus minoris resistentiæ* must afford the seat of invasion; it may be the tonsils, pharynx or some other part of the alimentary canal. The point which I want to bring out most is the importance of examining the entire alimentary canal to ascertain the seat of invasion, for the purpose of more intelligent management of these cases. I feel that a more systematic study directed toward locating the initial source of the infection will lead to a better understanding of rheumatic manifestations, simplify treatment and reduce complications.

THE ACTION OF PREDISPOSING CAUSES

Heredity is mentioned as one of the predisposing causes of rheumatism. On the theory of the infectious character of the disease, predisposition is explainable on the grounds that certain families without question possess vulnerability that is not seen in other families, and no doubt this predisposition is not limited to one kind of bacterial life. It is impossible in our present light of organic construction and metabolic activity to give a qualitative or quantitative definition to that peculiarity which we group under the term predisposition to certain diseases, but general observation teaches us that some individuals do not attain, in the process of their development, a normal grade of tissue construction which enables them to offer substantial resistance to a hostile environment.

Other predisposing causes are cold and dampness. The manner in which these act is in depressing the resistance of the individual. Both cold and dampness favor heat radiation from the body and bring the temperature below normal with a consequent reduction in antagonism to bacterial life. The truth of this is so well exemplified in the catching of an ordinary cold that it seems hardly necessary to dwell at length on the part played in the reduction of temperature in the provocation of some diseases. For an individual to maintain his best resistance the temperature must be constant and normal; reduction of temperature decreases physiologic activities and the standard of resistance, under which circumstances bacteria gain a foothold. It does not follow that every time one suffers a reduction in temperature, disease of some sort will follow. The presence of bacteria in sufficient numbers possessing a certain virulence is necessary. In reviewing the clinical picture of chronic cases of rheumatic fever, that is, those cases which show recurring symptoms after an acute attack, I am led to believe that the patients still harbor bacteria that caused the acute attack. Errors in diet, exposure to cold or dampness, fatigue, etc., provoke these attacks; under these unfavorable circumstances the resistance of the patient is diminished and lurking bacteria are offered less opposition. Latent tuberculosis and other dormant infections manifest themselves in certain conditions; in a like manner the bacteria causing rheumatic fever may remain dormant an indefinite time and show their presence only during perverted metabolic processes of the patient.

Recurring aches and stiffness of the muscles and joints generally spoken of as rheumatic can often be traced to various causes that have no relation whatever with rheumatic infection. I have in mind a patient who has always lived a sedentary life and who has been a sufferer from supposed rheumatism for twenty years. Examination of this case disclosed that the patient had persistent low temperature ranging from 97 to 98.2 F. and when his temperature was brought up to normal by stimulation or supplying artificial heat his symptoms would disappear. He had been fed on remedies for rheumatism without relief until the whole gamut of the Pharmacopeia had been exhausted. This patient obtained almost complete relief by spending a few months in a warm climate, meanwhile taking much physical exercise, which increased the efficiency of his heat mechanism and established a higher temperature range.

METHOD OF RESEARCH

In the interpretation of rheumatic symptoms two general divisions of the subject should be made. First, are the symptoms caused wholly by local morbid processes? Second, do they arise from metastasis? Before any intelligent study of the phenomena can be undertaken these two questions must be settled. Very clearly work of this character will, at times, involve much time, patience, observation and laboratory investigation, but the grave importance of a clear understanding as to all the facts demands that no physician should be contented with empiric treatment when handling an infection causing rheumatic fever. No mild and harmless infection is bringing about such manifestations, and it is the duty of a physician to locate accurately the source of absorption and if possible the kind of infection. If a careful inquiry is made into all the symptoms presented in cases of rheumatic fever I do not think one will fail to find some source of infection from which absorption is taking place, and having entered the circulation it makes its presence more pronounced by affecting sensitive and susceptible tissues and perhaps creating secondary foci. There is not sufficient evidence at hand to justify a theory that rheumatic infection like malarial infection gains entrance to the circulation and in that medium finds conditions suitable for its growth and liberation of toxins, but there is substantial reason for believing that the mucous surfaces are the seat of infection from which absorption occurs, and I am reasonably sure that further observations will show that the intestinal mucosa furnishes a large list of these infections. The arthritic, endocardial and pericardial involvements should be viewed as secondary results or the local manifestations of bacteria, their toxins or both acting on susceptible tissues.

REPORT OF CASES

While I was preparing this paper two more cases have come to my attention confirming the theory of primary intestinal infection in rheumatic fever

Case 1—The patient was a girl, aged 17, whom I saw in consultation with Dr Walter Culin, of Coquille, Ore At first she had prodromal symptoms lasting two months which were characterized by general lassitude, indefinite mild chills and constipation When the acute symptoms were precipitated the intestinal involvement was quite pronounced. Her attending physician thought at first he was dealing with a case of ptomain poisoning but as the case progressed arthritic symptoms developed and since that time it has presented the appearance of typical polyarthritis of rheumatic fever The temperature in this case has been as high as 106 but when I saw the patient about two weeks after being confined to bed, there was a temperature of 101, respiration twenty four, meteorism, constipation, stools showing considerable mucus, polyarthritis and sweating, with no enlargement of the spleen or cardiac involvement

Case 2—The patient, a man aged 36, has chronic rheumatism This patient at the age of 6 years had a very severe attack of inflammatory rheumatism and he informs me that he has had light recurring spells ever since and they are preceded by what he terms bilious attacks He has a tendency to constipation and requires the continual use of physic to regulate his bowels Two years ago this patient had an attack of rheumatic purpura which covered a considerable portion of the body, this condition was finally cleared up by the use of active purgatives continued over several days

CONCLUSIONS

In the absence of any personal information to the contrary, I believe that I am presenting two original ideas in this report

1 In many cases of rheumatic fever the initial seat of the infection is in the intestinal tract, from which absorption of bacteria and their toxins occurs, on entering the circulation these cause peripheral symptoms in susceptible tissues

2 Chronic or recurring attacks are or may be due to the continuance of the bacteria of rheumatic fever in the intestinal tract in an attenuated condition and are roused to activity by dietetic, hygienic environmental errors of the patient which cause a reduction in metabolic activity and natural resistance

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TRANSPLANTABILITY OF MALIGNANT TUMORS TO THE EMBRYOS OF A FOREIGN SPECIES*

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It appeared early in the development of modern surgery that tissues of lower animals could not be ingrafted into human beings The extent of this barrier between species was not fully appreciated until the discovery of the transplantability of tumors It was soon demonstrated by experiment that tumors of lower animals not only fail to grow when inoculated into another species, but often fail or give only slight growth, when grafted into a different variety of the same species For example, the tumors of the white mice usually fail to "take" when inoculated into the gray or brown mouse Recently Rous[1] has reported a tumor of a pedigreed chicken, from the first inoculations of which tumors resulted in none other than blood-related individuals, and only after the malignancy had become greatly increased by repeated transfer did growth take place in other varieties of chickens

The idea of the specificity of transplanted tumors has become so firmly established among students of cancer research that the fact of a new growth of any kind proving transferable to another species is considered evidence against the growth being a true neoplasm The views entertained of genital tumor of the dog transplanted to the fox, and a tumor of the hare successfully inoculated into the rabbit, serve as examples of this[2]

Ehrlich[3] was the first to demonstrate that while tumors of one species cannot be transferred, in the true sense of the word, to a foreign species, yet such tissue when introduced into a closely related species may survive for a short time (from eight to ten days) and the cells actually multiply If the tissue during this period is returned to the original species, it seems unaffected by its sojourn in the foreign host and is capable of producing an actively growing tumor If, however, the graft is allowed to remain, or is transferred to another host of foreign species, it soon dies and is absorbed These observations are accounted for by Ehrlich on the theory that tumor cells lack proper receptors to combine with the food elements of the foreign species and die from lack of nourishment He considers that enough specific food is carried along with the graft from the original host to account for the temporary survival and growth When this supply is exhausted the cells quickly die

We reported last year[4] the successful inoculation of the Rous chicken sarcoma into the developing chick embryo In the course of this study the important observation was made that the tumor grew well in the developing pigeon or duck embryo, whereas in the adults of these species it quickly died and was absorbed This fact suggested a wide difference between the embryo and the adult in their reaction to foreign tissues The embryo, we might say, either provides a food substance utilizable by these tissues, which is lacking in the adult, or else lacks a defensive mechanism against such an invasion, which is possessed by the adult The following results, obtained with tissues of a more distantly related species, constitute another and much more remarkable instance of similar kind

Following the technic described in former papers,[4] I inoculated a fine hash of the Jensen rat sarcoma into the outer membrane (fused chorion and allantois) of five-day to seven-day chick embryos, these were then incubated from ten to twelve days, that is, to within two days of hatching When the shell was removed and the membrane cut and turned back, in a high percentage of instances the egg was found to have, at the point of inoculation, a rounded globular mass, suspended from the membrane by a broad flat pedicle The masses varied in size from 0 2 to over 2 cm in diameter The consistency was that of a firm jelly, varying in color from pinkish-gray to red The surface was smooth and glistening with numerous large dilated vessels coursing over it and smaller vessels were visible in the semitranslucent substance of the tumor itself On section the masses were found to be solid and composed throughout of this pinkish-gray, somewhat translucent tissue, with small areas of hemorrhage in some cases The tissue was quite moist and friable

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* From the laboratories of the Rockefeller Institute for Medical Research

1 Rous Jour Exper Med 1910 xii 696.

2 Von Dungern and Coca Ztschr f Immunitätsforsch 1909 ii 391 Von Dungern Munchen Med Wchnschr 1912 lix 278.

3 Ehrlich P Arb a d k Inst f exper Therapie 1906 No 1 p 84

4 Murphy J B and Rous P Tumor Implantations in the Developing Embryo Experiments with a Transmissible Sarcoma of the Fowl THE JOURNAL A M A March 11, 1911 p 741 Jour Exper Med 1912 xv 119

In the rat the Jensen tumor is made up microscopically of characteristic large spindle-cells, with a clear vacuolar nucleus and a fairly deep-staining protoplasm The cells lie close together, with little stroma, or intercellular substances Thin-walled blood-vessels are fairly frequent, and occasionally mitotic figures are seen The cells of the new tumors grown in the chick embryo have an almost identical structure with those of the tumor grown in rats The cells, however, are not so compact, in some cases forming only a loose network, with clear spaces between Mitosis is extremely frequent, almost every field showing some stage of this process, and as many as five such figures have been seen in an area taken in by the oil-immersion lens The blood-vessels filled with nucleated chicken blood-cells are numerous, budding out from the membrane in large tufts There is practically no stroma, except a slight amount carried with the vessels The surface of the mass is covered with a continuation of a thin layer from the chick membrane

The results in the adult chicken are very different Here the tissue of the Jensen sarcoma is so quickly destroyed that few of its cells remain intact after twenty-four hours That in the embryo the rat cells retain their biologic characters is shown by the fact that the tissue, when returned to the rat after a sojourn of from ten to twelve days in the chick, causes an actively growing tumor of the Jensen type

The results obtained up to this stage of the experiment that is, the active growth of cells in a foreign species over a period of from ten to twelve days, might possibly be accounted for in the same manner that Ehrlich explains the survival and slight growth of the mouse sarcoma in the rat The results are hardly comparable, however, when it is considered that in the embryo the cells at the twelfth day are still in a state of active growth, with no indication of degeneration or of a defensive reaction on the part of the host, while in the Ehrlich experiments only the outermost cells survive, and there is a marked defensive reaction on the part of the foreign host The next experiments remove any doubt as to the untenability of the Ehrlich theory in explaining the case

It was found that the tissue of the tumors formed in the membranes of the chick by the inoculations with the Jensen rat sarcoma would continue to grow if implanted in another developing chick embryo The tumors resulting from the second series of inoculations were similar in every respect to those of the first In like manner a third and fourth successful transfer could be made This is the stage I have at present reached, with a total of forty-six days of continuous growth of the rat tumor in the chick embryo The tumors at this stage are similar to those of the original inoculation The cells retain their form and structure unaltered, are fairly compact, and show numerous mitoses No degeneration or irregularity of the division figures occurs Tissues from the second and third transplantation series when returned to the rat caused actively growing tumors No inoculations were made from the fourth series into rats, as the tissues were needed for other purposes

It would naturally be expected that after so long a dependence on a foreign food there might be some change in the direction of an adaptation on the part of the rat cells to the new conditions That this change cannot be marked however is shown by the fact that the rat tissue, grown for so long a period in the chick embryo, is almost as quickly killed when introduced into the adult chick as is the tissue taken direct from the rat There is perhaps, a slight difference in the reaction on the part of the adult to such inoculations This point will be discussed in a subsequent paper

A variety of other tissues have been found to grow quite as well as the Jensen tumor when inoculated into the chick I have grown in this way, for periods varying from seven to twelve days, chick embryonic tissue, rat embryonic tissue, a sarcoma a carcinoma and a chondroma of the mouse and the Flexner-Jobling adenocarcinoma of the rat The rat embryonic tissue and the mouse sarcoma and carcinoma were successfully reinoculated into the original species after growth in the foreign embryo

CONCLUSION

It is here shown conclusively that mammalian tumor tissue can live and grow actively in the chick embryo although in the adult chicken it quickly dies and is absorbed By transfer from one embryo to another the mammalian tissue can be kept growing continuously in the avian host for as long as forty-six days and probably indefinitely This proves beyond doubt that the mammalian cells are able to utilize the food supplied by the avian embryo Whether the phenomenon is dependent solely on this factor or whether the absence of a defensive mechanism in the embryo plays the more important part is a subject which is being studied and on which a report will be made later

Sixty Sixth Street and Avenue A

THE WATER PURIFICATION WORKS OF THE BALTIMORE COUNTY WATER AND ELECTRIC COMPANY*

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Probably there is no body of professional men that more fully realizes the value of pure drinking-water than does the medical fraternity The physician can wholly appreciate what pure water-supply means to any community and the part it plays in the prevention of certain infectious diseases For this reason it is believed that the description of the water purification plant of the Baltimore County Water and Electric Company will be of particular interest as it shows to what extent a privately owned water company has carried its purification work in safeguarding its consumers against disease

The filtration plant of this company is situated at Avalon, Baltimore County, Md which is about 9½ miles southwest of Baltimore, and the water filtered is pumped thence to a dozen or more suburban places in the immediate vicinity of the city The plant is novel in many respects but particularly in that there are both slow sand and mechanical filters which are operated daily under identical conditions This fact has afforded an opportunity for studying the relative values of the two types of filters a condition which, so far as is known exists at no other place in the country except on an experimental scale

The unfiltered water is drawn during the greater part of the year from Rockburn Branch a small [illegible] stream in Howard County This stream, which is only 2 miles in length, flows through a sparsely populated territory and empties finally into the Patapsco River The water is usually clear and contains but a small amount of suspended matter and color although whenever there are heavy rains it becomes quite turbid because of surface washings from the steep hills near by When there is not enough water in this stream to supply the filters the deficiency is taken from an impounding reservoir about one-half mile above the plant The reservoir water comes partly from springs and partly from infiltration from the Patapsco River through the reservoir banks The quality of this water, although not seriously polluted, could not in its raw state be considered safe for drinking at all seasons of the year The raw water runs to the plant and on the slow sand beds by gravity, but is raised to the mechanical filter by a centrifugal pump which is operated by a vertical direct-connected Wagner motor

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City June 1912

The slow sand filters consist of two units, having a combined filter area of approximately one-half acre and a capacity of 1 25 million gallons per day Each unit is operated independently of the other so that either may be cleaned while the other is in service The sand beds are 34 inches in depth and rest on 16 inches of crushed stone and gravel The filters are equipped with the usual regulating devices for maintaining a constant head of water on the sand and a uniform rate of flow through the beds

For the past two years the cleaning of the beds has been done by the Brooklyn method, which is accomplished by allowing water to flow over the sand while men rake the surface To facilitate cleaning by this method each unit was divided into sections or channels 4 feet wide across the width of the bed by means of pine boards imbedded in the sand and rising 6 inches above the surface of the bed The head of water necessary is obtained from unfiltered water on the other slow sand unit which is in service Cleaning the filters by this method has given entire satisfaction and is much cheaper and requires less time than scraping and removing the *Schmutzdecke*

The filtered water from both units empties into the clear water well and is mixed with the filtered water from the mechanical filters The average length of time between cleaning of the beds during 1911 was thirty-seven days and sixteen hours These beds are operated during the whole year excepting when the turbidity of the raw water is greater than 100 parts per million during which times they are out of service High turbidities plug the bed so rapidly that it [illegible] found that it was not economical to operate the beds at such times The chemical and bacterial efficiencies from these filters have been excellent as will be seen from the accompanying table

MECHANICAL FILTERS

There are two mechanical filters each having approximately 200 square feet of filter area and combined filter capacity of 1 025 000 gallons per twenty-four hours The depth of the sand in these filters is 34 inches and it rests on 8 inches of gravel The gravel prevents the sand from being washed into the collecting system at the bottom of the beds The rate of flow through the filters is kept constant by automatic controllers and each unit is equipped with a gauge which registers the height of water on top of the sand and also indicates when the bed is dirty and requires cleaning The filters are washed with [illegible] water under a pressure of 20 pounds per square inch and the sand is agitated by compressed air under 3 pounds' pressure In connection with the filters there is a sedimentation basin holding 160,000 gallons, or about four hours' supply for the filters The alum which is used in this process of filtration is applied to the water in the form of a solution as the water enters the sedimentation basin As it requires four hours to pass through here, there is ample time for the alum to unite with the alkaline salts in the water, which is necessary to form the coagulant, and sufficient time for sedimentation The treated water from the basin flows directly on the filter beds where the final purification takes place

Hypochlorite of lime is used on these filters and is applied to the water as it passes from the basin just before the water reaches the filters The bleaching powder is fed to the water in a 0 5 per cent solution, through a graduated orifice which is calibrated to read in grains of bleach per gallon of water filtered The amount used varies from 0 04 to 0 1 gr per gallon of water or from 0 2 to 0 6 parts per million of available chlorin Hypochlorite of lime is used, not because the filters have failed to produce adequate bacterial purification but because it was found by actual operating tests that it was much more economical in the operation of the plant By the use of hypochlorite it was possible to reduce the amount of alum necessary to obtain high bacterial efficiencies, which thereby increased the length of runs between cleaning the filters and reduced the quantity of water necessary to clean the beds

The length of time between cleaning the beds varies from ten to forty hours directly according to the amount of suspended matter in the unfiltered water The alum applied to the water is regulated according to the turbidity present and like the hypochlorite of lime solution is fed through a graduated orifice calibrated to read in grains per gallon of water filtered

In the mechanical filter-house is a sample pump which is operated constantly and delivers water from each filter unit as well as the raw and treated water so that samples of water for analytical purposes may be taken at any time

The company maintains its own laboratory for chemical and bacteriologic analysis of the water The laboratory has many novel features the chief of which, perhaps, is the electrical operation of practically all the apparatus used, much of which was especially designed for the particular need of the work at hand

Samples of the unfiltered and filtered water are analyzed many times each day for a thorough knowledge of the water so as to maintain the filters at their highest degree of efficiency

The chemical and bacteriologic work is all done according to the standard method of water analysis compiled by the American Public Health Association The routine culture medium for determining the number of bacteria per cubic centimeter is nutrient gelatin and the plates are incubated at 20 C For special work agar-agar and Endo's medium are frequently used

Owing to the great number of *Bacillus coli* determinations that are made, these are only presumptive tests, but the determinations are made according to the standard methods Such tests I believe to be quite as valuable for routine work in testing the efficiencies of filters as the more lengthy determinations All *B coli* samples are incubated at 40 C, which temperature has a tendency to eliminate all bacteria other than organisms that are capable of growing under these conditions

The accompanying table gives the results of the average chemical analyses of the unfiltered and filtered water during the past four years

It has been impossible to compile with any degree of accuracy the mortality or morbidity rates from typhoid fever among users of this water The reason for this is that many of the consumers conduct business in Baltimore where the water-supply is unfiltered, and many have private shallow well-supplies which they persist in using, although a recent investigation undertaken by the company showed that 90 per cent of these well-supplies are seriously polluted As far as is known, not a single case of typhoid fever has ever been traced to the use of this supply

CONCLUSION

It will be seen from the table given herein that both systems of filters have produced high bacterial efficiencies, and the results in general have been quite uniform irrespective of the great fluctuation in the quality of the raw water Careful interpretation of these results shows that either method when properly operated is capable of producing safe drinking-water, but it depends on local conditions as to which installation will be more economical The cost of filtration by the slow sand method at Avalon is $8.85, and by the mechanical $9.16 per million gallons These figures represent interest on investment, depreciation, operation and operating management These comparative costs cannot be taken entirely as a criterion as it must be remembered that there is no sedimentation basin in connection with the slow sand plant, and that the filters are cut out of service when the turbidity of the raw water is above 100 parts per million

TABLE SHOWING AVERAGE RESULTS OF THE CHEMICAL ANALYSES OF THE RAW AND FILTERED WATER OF THE BALTIMORE COUNTY WATER AND ELECTRIC COMPANY

	Unfiltered Water	Filtered Water	
		Mechanical	Slow Sand
Color	23.0	0.0	3.5
Odor	None	None	None
Alkalinity	23.0	17.0	24.0
Turbidity	65.0	0.0	1.0
Total residue at 230 F	100.0	65.0	66.0
Volatile residue	35.0	17.0	21.0
Ignited residue	65.0	48.0	45.0
Chlorin	3.90	3.95	3.90
Nitrogen as free ammonia.	0.0620	0.0240	0.0150
Nitrogen as albuminoid ammonia	0.1883	0.0640	0.0470
Nitrogen as nitrates	0.4170	0.4300	0.4700
Nitrogen as nitrites.	0.0030	0.0008	0.0007
Sulphates calculated as SO—			
Required oxygen	2.71	0.75	0.78
Dissolved oxygen—			
Iron	1.24	0.32	0.31
Carbon dioxid (CO)	3.0	4.00	1.0
Hardness	35.60	37.02	35.89

ABSTRACT OF DISCUSSION

Dr C Hampson Jones, Baltimore The outskirts of Baltimore, a large territory are covered by neither one of the two water supply plants, and while nothing can be shown concerning typhoid fever yet the bacteriologic result will certainly warrant one in believing that any typhoid infection that might be in the raw water has been effectually removed

Mr. A H Wehr, Baltimore We have endeavored to ascertain the number of typhoid cases in our area but we do not have a local health department as efficiently conducted as is that in our city under Dr Jones' direction and we have to rely, to a very large extent, on the general information which the state board of health has further than that there are a great many people in our immediate territory who still rely on their local wells, some of them are some little distance removed from the public water supply because it is a suburban or rural community For that reason we cannot take the returns and apply them directly to our conditions but I think the typhoid situation in the suburbs of Baltimore is in very good condition. I do know that in towns in our territory which previously had to depend on local water supplies and have had typhoid epidemics since the introduction of our public supply they have had no such epidemics so that all we can say is that so long as there is no typhoid we can at least take unto ourselves a certain amount of credit for eliminating it

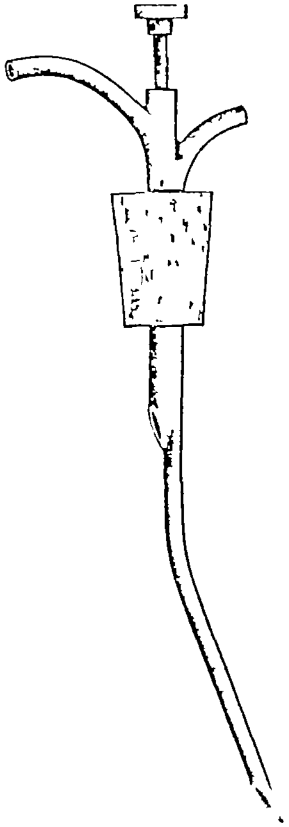
A NEW REGULATING DROPPER FOR ETHER OR CHLOROFORM, USABLE ON ANY CONTAINER

Frank Wilcox Pinneo, M D Newark N J

Surgical anesthesia combines in large measure both science and art, science in the profound effect of anesthetics art in the great difference, in safety and well being of the patient, between skilled and thoughtless administration

The present time is demanding a finer discrimination between methods The aim is to approach the 'ideal anesthesia' one factor in which is perfectly even administration Success in the prevailing use of the drop method with ether is hampered by intermittent application of the anesthetic whereas there should be a steady dropping of the ether But no suitable dropper has been hitherto made which combines efficiency with simplicity and availability for universal use The one shown herewith has been designed to fill this need of regulating

It is a double tube—inlet for air outlet for anesthetic—with a needle valve in the latter, so placed that a finger easily screws it down to any degree of frequency of drops or opens it to a full large stream Quickly punched through any cork it has the following advantages



A regulating dropper for ether (or chloroform) usable on any container

1 It can be used in any bottle or ether can

2 It accomplishes an evenness of administration necessary to a perfect anesthesia

3 It economizes ether as wasteful evaporation is minimized

4 It increases efficiency as ether when dropped on the mask is better volatilized and warmed

5 It allows pouring ether when used for other methods

6 It can be used for chloroform which [illegible] greater accuracy in dropping

7 It is therefore useful in obstetrics, the physician starting the drop before entrusting it to his assistant (often unskilled)

8 It has no bottle or other part necessary to it which if broken or lost destroys it

9 It is so inexpensive and readily carried by mail that it is universally usable

194 [illegible] Street

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SATURDAY, SEPTEMBER 14, 1912

A NEW THEORY OF PROTEIN METABOLISM

The story of metabolism cannot fail to hold the attention of any group of men whose interests center in the functions of the living body, for it involves the special factors that dominate the activities of the organism. It is still much too early for profitable speculation on the causes of the complex and obscure changes which determine these reactions. After forty years of untiring effort in this field the master student of nutrition, Carl Voit, had to content himself with saying, in 1902, that "the unknown causes of metabolism are found in the cells of the organism." The chemical dynamics of the cell are still the subject of controversy and hypothetical discussion.

There are facts as well as theories of nutrition. We know that the nitrogen of our protein intake is soon represented by certain relatively simple nitrogenous end-products in the excretions. What are the transformations which have been experienced in this interval? That is one of the leading questions in the study of metabolism.

There was a time, not very long ago, when it was supposed that ingested protein was absorbed in a form little altered beyond the point of a thoroughly soluble and diffusible product. When the difficulty of detecting the absorbed material in the blood-stream beyond the alimentary wall began to manifest itself, recourse was had to the theory of regeneration. The products of absorption were assumed to be reconstructed into typical protein, in which form the ingested material is sent on its way through the blood-stream. When the newer knowledge of the digestive processes brought an appreciation of the profound cleavage which the protein molecule presumably undergoes in the alimentary tract prior to its absorption, a new set of problems was presented. Instead of proteoses or peptones the amino-acid degradation products now had to be followed and accounted for in their migrations from the intestine. Here again the newer products could not be satisfactorily demonstrated in the portal blood, and the hypothesis of a resynthesis of blood proteins from the digestion fragments in the passage through the intestinal wall became a logical necessity. This point of view has been vigorously championed by Abderhalden. The fact that there is no evidence of the increase of coagulable protein in the blood, such as would be demanded by the hypothesis of immediate regeneration, has likewise proved to be somewhat of a stumbling-block. Thus the way was opened for another hypothesis, that of deaminization. The discovery of relatively larger quantities of ammonia in the intestinal wall and portal blood than are found in other tissues warranted the belief that the protein fragments become denitrogenized in the course of their absorption, and perhaps further in the liver, so that the liberated ammonia nitrogen finds a speedy conversion into urea in the liver. The organism is thus rapidly rid of the undesired nitrogen, leaving the non-nitrogenous residue for useful application as a source of energy. This explanation has proved to be an attractive one in recent years.[1]

The student of the problems which have here been reviewed will readily discover that the lack of suitable analytic methods for the detection of small quantities of the various conjectured products of absorption has added to the uncertainty. Professor Folin and his co-workers in the Harvard Medical School have devoted much attention to this matter. The outcome of their efforts has been the perfection of technic designed to facilitate the following of the amino-acids and ammonia through the tissues and the circulation.[2] The result of their application has been to convince the investigators that no special deaminization process is located in the intestine, and that the ammonia in the portal blood is very small in amount and represents the absorption of ammonia produced in the intestinal lumen, chiefly by putrefactive bacteria. This dispels one hypothesis.

Equally surprising are the further conclusions[3] that the amino-acid products of digestion actually do pass into the circulation and that they are not held back by the liver but transported on to the other tissues. The accuracy of this account depends on the validity of the methods of analysis employed, and these still await confirmation from other sources. The positive findings are nevertheless decidedly more attractive, and in this case teleologically more reasonable, than the negative evidence on which the regeneration hypotheses have been based. We may, for the present, believe that the food protein reaches the tissues in the form of amino-acids and that those amino-acids which are not needed for the rebuilding of broken-down body material are not rebuilt into either protein or protoplasm, but are broken down and their nitrogen converted into urea.

Obviously no theory of this sort would be complete without some demonstration of the actual connection between the food amino-acid and the excretory urea. This has now been shown by Folin to exist. The rapid absorption of digestion products is followed by the appearance of urea in the tissues and the circulating blood There is, as yet, no positive evidence that deaminization and urea formation represent a specialized process confined to some particular organ The absence of any apparent localization is in itself a strong indication that there is none, so that in view of their dominant rôle the greatest amount of urea is presumably formed in the muscles, according to Folin

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[1] Compare Mendel, Lafayette B.: Theorien des Eiweissstoffwechsels, Ergebn. d. Physiol., 1911, xi, 418.

[2] The details are described in the Jour. Biol. Chem., 1912, xi.

[3] Folin and Denis: Protein Metabolism from the Standpoint of Blood and Tissue Analysis, Jour. Biol. Chem., 1912, xi, 161; xii, 141.

One other important finding deserves notice here Ingested creatin and creatinin have not been observed to occasion a production of urea such as occurs when *amino-acids are absorbed This absence of demonstrable* urea formation is in itself an argument against the hypothesis that these two products are extensively destroyed in the body The fact is further in harmony with the current belief that the story of creatin and creatinin in metabolism, like that of the purins, must be sought in a different chapter from that which ends with the genesis of urea

THE PROTECTIVE FERMENTS OF THE BLOOD AND A NEW TEST FOR PREGNANCY

For some years Abderhalden has been occupied with the study of the way in which the animal body protects itself against foreign substances that gain entrance into its interior He had the idea that the processes involved were essentially metabolic in nature, and was thus led to investigate the occurrence of certain ferments in the blood-plasma under normal and experimental conditions The results of these investigations are summarized and discussed by him in a recent monograph [1] In view of their importance and interest, a brief statement of the principal results may be warranted

Generally speaking, the substances taken into the body as food are subjected to various kinds of fermentative action, both before and after absorption from the digestive tract, whereby they are split up and rendered not only harmless but fit material for the purposes of nutrition and growth The cells themselves harbor a number of ferments that can split fats, reduce carbohydrates and break up proteins and protein derivatives While practically every cell in the body can carry on digestive processes, the blood-plasma of man and of many animals normally does not possess any digestive powers, at least for proteins, so far as is demonstrable with the methods now in use It seems as if foreign substances requiring rapid cleavage normally do not enter the blood This being the case, Abderhalden set to work to determine whether the blood-plasma acquires any new fermentative properties when foreign substances are introduced into the blood directly without first going through the digestive tract Various protein substances were injected into dogs and rabbits, and invariably the plasma of animals so treated rapidly acquired the power to split proteins and peptones, but not fats and carbohydrates The action of the newly formed ferments is seen very clearly by means of the polariscope, which shows that in digestion-mixtures made with the serum of injected animals the rotatory effect on light differs from that of mixtures made with normal serum The digestive action of the serum of injected animals is demonstrable in other ways also

The appearance in the blood of proteolytic and peptolytic ferments having been shown to follow the parenteral introduction of proteins the next step naturally was to find whether similar results follow the injection of foreign, non-protein substances The experiments on this point gave results confirmatory of those already obtained by Weinland, namely that the injection of cane-sugar into the dog induces the appearance in the blood of invertin Other sugars, notably milk sugar are also changed by the serum of dogs injected therewith and such serums, as well as the serums of dogs injected with starch, invert cane sugar also It is remarkable that invertin should appear in blood plasma as early as fifteen minutes after the intravenous injection of cane-sugar

In the case of fats the conditions were found to be more complex, homologous fats appear to increase the fat-splitting power of the plasma, and the question whether foreign fats exercise a specific effect must be studied further

As the ferments in question attack the substances which call them into the blood and thus no doubt protect the body, Abderhalden, like Heilner, designates them as protective ferments Their origin and their relation to anaphylaxis, to the antibodies of the immunologist and to the ferments described by Vaughan in the serum of guinea-pigs injected with foreign proteins are questions that cannot be discussed now, but it may be pointed out that according to Abderhalden's work the proteolytic and peptolytic protective ferments do not seem to be nearly so narrowly specific in their range of action as the bodies concerned in the anaphylactic and other reactions of immunity are believed to be It may be, however, that other methods of study will give different results, future investigations, no doubt, will throw light on these and other questions Even as the matter now stands, it is clear that the presence in the plasma of protective proteolytic ferments may have a significance quite similar to that of antibodies because in both cases it concerns a reaction to the entrance into the body of foreign proteins Thus Dick[2] has shown that in pneumonia the blood serum contains ferments that digest the pneumococcus and Abderhalden has discovered that in pregnancy the blood contains ferments that digest proteins and peptones derived from the placenta He was led to this discovery by the conception that certain cells of the body may harbor constituents which are peculiar and foreign to the blood and which therefore on entrance into the blood lead to the production of special ferments In order to test this possibility he made experiments with the serum of pregnant women and animals, as it is known that in pregnancy cells and fragments of the chorionic villi commonly enter the blood The ferments discovered in this way appear to be largely specific for the placenta By examination in a large number of pregnant women, Abderhalden has shown that such ferments are constantly present in pregnancy, they appear in the first month, and eight days after abortion or birth at term they are no longer demonstrable by the methods used (polariscope, appearance of peptone in the dialysate of mixtures of placental material and serum of the pregnant), similar ferments are present also in the serum of pregnant animals The injection of animals, male as well as female, with placental tissue, extract or juice, produces ferments that digest the injected material Here then we have a new test for pregnancy that promises to be of practical value In one case of extra-uterine pregnancy the test gave a positive result This method also furnishes us with a new means for the study of vomiting of pregnancy and of eclampsia Indeed it is altogether likely that Abderhalden's work on the ferments of the blood-plasma will prove of service for the study of a wide range of problems in pathology

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[1] Abderhalden Emil Schutzfermente des tierischen Organismus Julius Springer Berlin 1912

[2] Dick Jour Infect Dis 1912 x, [illegible]

MORPHIN VERSUS THE COMBINED OPIUM ALKALOIDS

It is a logical endeavor on the part of those who are interested in the rational use of drugs to supplant crude concoctions of variable or uncertain activity by well-defined, isolated chemical compounds, the so-called active principles of the pharmacist's products The increasing substitution of pure alkaloids and their salts for the older tinctures and extracts of pharmacologically active plants bears witness to the tendency of the times and gives promise of a time not very long ago [illegible] a more satisfactory and dependable therapeutic procedure In certain cases, however, the results from the use of the isolated "principle" have been observed to be not entirely identical with those which attend the administration of corresponding galenical products or the crude drug itself This is notably true of opium the therapeutic efficacy of which is somewhat different from that of its chief alkaloidal ingredient morphin

W Straub has undertaken to throw some light on these differences It is probable, *a priori* that they would be due to the minor alkaloids of opium, but, to quote Straub It is improbable *a priori* that it is necessary in order to improve the action of morphin, to drag in the whole of the two dozen alkaloids of opium (*die zur Verbesserung der Morphin Wirkung alle zwei Dutzend Alkaloide mitgeschleppt werden müssen*), it is much more probable that only the most active or the most abundant of the alkaloids need to be considered"

It is well known that in addition to morphin, opium yields a series of alkaloids including narcotin, papaverin codein, narcein and thebain, diminishing in abundance in the order indicated Morphin makes up about 10 per cent of the opium and narcotin 6 per cent, while the others are represented in relatively small amounts In the proportions in which they are likely to be used in opium products, narcotin, papaverin and narcein may be regarded as practically inert Even for the active codein relatively little effect is to be expected from the limited quantity which is present here The conclusion from these facts is that we can scarcely explain the characteristic "opium effect," in contrast with the action of its contained morphin, on the basis of a simple summation of the dosage of its contributory alkaloids

There are ways in which one substance may augment the action of another without merely adding its own specific potency to that of the second A compound inert in itself may modify the sensitiveness of the organism to other substances, in other words, it may fortify their efficiency by rendering the individual peculiarly receptive or by other less apparent means Herein seems to lie the superior efficiency of the combined opium alkaloids, according to recent observations by Straub[1] Using narcotin, the most abundant companion of morphin, in doses too small to produce typical pharmacologic effects of themselves, he has found that it modifies and greatly increases the effects of morphin This was demonstrated for a variety of manifestations peculiar to the action of this drug In cats narcotin lessened the excitant effect of morphin, in rabbits it lessened the depression of the respiratory center, in mice it may almost double the toxicity of morphin These researches have made it probable that the practical differences between opium and morphin are mainly due to the narcotin H Caesar,[2] working with Straub, has made comparable trials with the other alkaloids associated with morphin in opium and found that these do not produce an equal reinforcement of the features under discussion, at least when used in quantities suggested by their natural occurrence in opium

They do have complex modifying effects, however, which are further complicated by any changes in their relative proportions Since these proportions vary enormously in different samples of opium, and still more in its galenical preparations, and since the influence of these variations can neither be foreseen nor calculated, Straub and Caesar suggest the employment of a simple mixture of equal parts of morphin and narcotin in place of the opium This proportion was found much more favorable than that existing naturally in opium (1 part of morphin against from 0 075 to 0 9 parts of narcotin, Bruhl)

Straub's discovery of the peculiar pharmacologic interrelation of these two alkaloids marks a step in progress, but it still remains to be seen whether the morphin-narcotin mixture has any special advantage over morphin or opium in therapeutics

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[1] Straub W Pharmakodynamische Wirkung des Narkotins im Opium Biochem Ztschr 191[illegible] xli 4[illegible]

[2] Compare Caesar H Toxizitätsänderungen des Morphins bei Kombination mit anderen Opiumalkaloiden Biochem Ztschr 191[illegible] xlii 316

DIPHTHERIA VACCINE AND DIPHTHERIA CARRIERS

An extremely vexing problem for health authorities and physicians is presented by bacillus-carriers, particularly carriers of typhoid fever and diphtheria. Typhoid carriers may harbor bacilli for years, during which time each is a menace to the community in which he lives. Diphtheria carriers may have bacilli in their throats for months, and are in a way even a greater menace than the typhoid carriers because of the greater ease with which the organisms may be distributed. In view of these facts, the work by Hewlett and Nankivell[1] is opportune; their results, if substantiated, may help to solve the problem of the diphtheria carrier.

By a series of observations the authors demonstrate that of the current methods of handling such carriers complete isolation has been most successful. Local and internal treatment give poor and unsatisfactory results. Thus, with a view to reaching the deeper tonsillar crypts not touched by local treatment, iodin was given until iodism resulted, but without success. As it had been found that with the disappearance of the diphtheria bacilli an increase in the non-virulent organisms in the throat occurred, inoculation of the throat with such organisms was attempted in two cases, but in vain. Finally, it was undertaken to prepare a vaccine, and this yielded the best results of all.

Bacillus diphtheria was grown in Roux bottles on serum or blood-agar, the growth was collected and washed several times in physiologic salt solution and centrifuged; the bacteria were then ground in intense cold by the Macfayden method and filtered through a Berkefeld filter. Sterile salt was added to the filtrate to make a solution containing either 2 mg or 5 mg per cubic centimeter of the ground bacteria.

In the earlier cases doses of from 0.5 mg to 1 mg were given. Later an initial dose of 2 mg was given and after a week 5 mg, if the swabs showed bacilli still present in the throat. Usually only a slight reaction with redness around the site of injection resulted. In one case nausea, malaise, fever and a more general reaction were produced. One of the authors injected himself first with 2 mg and then with 5 mg and sustained only slight reaction. After the vaccine is kept for some time there is less local and general reaction, but the strength is lost to a large degree after three months. It is harmless to guinea-pigs, which after injection acquire considerable immunity to living diphtheria bacilli.

Of five diphtheria patients injected with this vaccine while a membrane was still present in the throat, four showed no bacilli after two weeks and one showed none after a month. This may have been merely a coincidence, but the children selected were of the weaker, physically less robust type that tend to become carriers. In thirteen chronic carriers injections of the vaccine were followed by disappearance of the bacteria in a comparatively short time. In six patients so treated the bacteria failed to disappear altogether but there was a marked diminution in number. During the course of the investigation Hewlett and Nankivell found that scarlet fever patients who at the same time harbor the diphtheria bacillus are likely to become carriers, while those with diphtheria subsequently becoming infected with scarlet fever do not become carriers.

Practically simultaneously and for the same purpose, Petruschky[1] has used injections of bacteria killed with chloroform and washed. He was successful with seven chronic diphtheria carriers and was able to establish an active immunity by the injection of 0.1 c.c. of a suspension of dead bacteria followed four or five days later by the same quantity of a suspension ten times stronger. He emphasizes that such injections may be given for protective purposes including the immunization of chronic carriers and school children carrying diphtheria bacilli in their throats.

In view of the difficulties of long isolation and of the failure of other methods of treatment this work is of great interest. We have, however, few cases on which to base a judgment. The treatment of diphtheria with antitoxin has yielded magnificent results; perhaps its prevention with vaccine may prove equally effective in limiting the spread of the disease through carriers, if not in protecting individuals directly.

RECENT JAPANESE INVESTIGATIONS ON RICE BRAN IN RELATION TO DISEASE

We have frequently taken occasion to refer to the experimental production of multiple neuritis in animals by the use of exclusive diets of polished rice, and to the relationship of this outcome to the etiology of beriberi in man.[2] Reference has also been made to the attempts to isolate from the millings of rice a chemical compound which will avert the onset of the symptoms or act as a curative agent when the disease has already manifested itself.[3] The subject is of such serious importance and the prospect of experimental success so promising in view of the preliminary results already achieved that this field of study has quite naturally attracted investigators to it speedily. In the Far East, in particular, at the very home of the difficulties in their application to human nutrition, the problems have been attacked vigorously and effectively by scientists of various nationalities. The latest report, from the Agricultural College of the Imperial University at Tokyo,[4] brings new confirmation of the probability that some definite chemical compound can be isolated which will exhibit the curative and prophylactic properties that are the sub ject of such lively physiologic speculation. The active agent is present in alcoholic extracts of rice polishings. By special methods of precipitation and concentration the Japanese investigators have partly succeeded in isolating a substance which promises to furnish a product of specific potency, the exact chemical structure of which can be ascertained in due season. The name "oryzanin," which suggests the relationship of the substance to rice, has been proposed for the new product already separated in what the chemist would call a crude form. Among its decomposition products destined to give some insight into its structural make-up, pyridin, carbon dioxid, cholin and dextrose have been detected. Of course such incomplete data are too scanty to give any very definite conception of the chemical character of oryzanin, but they encourage the belief that the prospect of a solution in the near future is no longer purely visionary.

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[1] Hewlett and Nankivell: Lancet, London, 1912, clxxxiii, 143.

[1] Petruschky: Deutsch. med. Wchnschr., 1912, xxxviii, [illegible]

[2] The Etiology of Beriberi, The Journal A. M. A., Oct. 7, 1911, p. 1213; The Probable Cause of Beriberi, The Journal A. M. A., June 17, p. 18[illegible]; The Effects of Exclusive Diets—[illegible] Scurvy, The Journal A. M. A., July [illegible], p. [illegible]

[3] The Relation of Rice to Certain Diseases, The Journal A. M. A., Feb. 24, 1912, p. [illegible]7.

[4] Suzuki, U., Shimamura, T., and Odake, S.: [illegible] Oryzanin, [illegible] und [illegible] Bedeutung, Biochem. Ztschr., 1912, xliii, [illegible]

Like the product separated by Funk at the Lister Institute in London the crude oryzanin will resuscitate pigeons which have been fed on polished rice until they show symptoms of peripheral neuritis. The potency of the product already available (which will presumably be increased by a more successful purification) is best indicated by the fact that quantities of from 5 to 10 mg. per day suffice to prevent the onset of the typical malnutrition which polished rice invariably induces in pigeons. The proportions here mentioned constitute only 1/2,500 to 1/5,000 of the daily food intake of the animals.

These curative effects are not confined to pigeons alone. Other species are affected by a prolonged inadequate rice diet and can be protected from dangerous symptoms by the addition of oryzanin or alcoholic extracts of rice bran to their food. Arguing that the small content of inorganic constituents can play no significant part in the restoration of nutritive equilibrium thus established, the Japanese investigators go so far as to assert that oryzanin includes a compound indispensable for the maintenance of life. They have fortified themselves in this belief by feeding small animals with mixtures of isolated food-substances—proteins, fats, carbohydrates and inorganic salts—without nutritive success until the rice product was added in small amounts to the dietary. The recent experiments of Osborne and Mendel[1] in this country show, by the success with which rats were maintained on mixtures of isolated foodstuffs over long periods of time, how cautious one must be about drawing sweeping conclusions regarding the deficiencies in dietaries. It may well be that the chemical compound still masked in the crude product called oryzanin is one of a type widely distributed in nature, for it has been found that various plant materials—barley, wheat, oats, beans, etc.—will avert the dangers of milled rice. The usefulness of animal products is still somewhat more doubtful, although alcoholic extracts of meat and of milk have already furnished some suggestive positive experimental results.

On the basis of our present knowledge it would show a lack of critical insight to maintain that there is only a single type of malnutrition and a single prophylactic agent. Without accepting the extreme deductions of Suzuki, Shimamura and Odake regarding the exceptional life-saving virtues of the product they have investigated, we can nevertheless welcome the advent of a period when the investigation of these unique nutritive properties is being put on a more substantial experimental basis. For, after all, the problems involved are chemical ones, and not until they are treated with the cooperation of the biologic chemist can they be expected to attain a successful solution.

Current Comment

TYPHOID AND THE CARELESS MILKMAN

An epidemic of twenty-eight cases of typhoid fever, with fifteen additional suspects, on the route of one small dairyman near Philadelphia directs attention to several interesting points. Typhoid fever is propagated from one case to another, and milk is its most perfect medium. A careless dairyman, careless consumers and a case of typhoid fever along the route make a combination that spells an inevitable epidemic of that dread disease. The dairyman in question did not possess enough clean bottles to supply milk to all his customers each day, so as he passed along his route he gathered up bottles which were set out for him, which of course had collected dirt, flies, bacteria and miscellaneous filth, and filled them from his bulk supply as he passed along. His first bottle customer had typhoid fever and used as a source of water-supply a spring, the overflow from which was the source of water for the family of the next customer, who also bought loose milk from the dairyman. Typhoid soon developed in the latter family and in a short time there were twenty-eight cases of the disease in the forty families served by the dairyman, with a possible additional fifteen who were suspected of having it. The rapid spread of the disease in this circumscribed area resulted in an investigation by the state health board, and in a few hours the epidemic was traced to this dairyman and his method of distributing the milk, which was known to his customers. The dairyman, a member of his family and his hired man were included among the victims. The loss in time, money and suffering from this epidemic is obvious and need not be dwelt on here. This typical instance, however, serves to call attention to the individual, community and national carelessness which makes such a thing possible. It also illustrates the ease with which a well-informed health organization can trace out the source of such an epidemic and apply the measures necessary to stop it, or which would have prevented it if applied in the first instance. Although, through another instance of carelessness or indifference, only about 60 per cent. of the area of the United States has adequate vital statistics laws, the figures are suffi ciently well worked out to show that we possess the unenviable distinction of having a death-rate from this filth-fostered disease which is among the highest. As tabulated in a recent article,[1] compared with other countries, the United States stood as follows with reference to deaths per million from typhoid fever during the period from 1905 to 1908, Spain, 362, United States (in the registration area), 288, Italy, 283, Austria, 156, Servia, 147, Belgium, 122, Ireland, ninety-one, England and Wales, eighty, Scotland, seventy-four, Netherlands, seventy-two, Prussia, sixty-one, German Empire, fifty-three, Switzerland, forty-six. It behooves us speedily to readjust conditions so that our death-rate may make a more creditable showing, and epidemics similar to the small one referred to may be prevented.

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[1] Osborne, T. B., and Mendel, L. B.: Feeding Experiments with Isolated Food-Substances, Publication 156, Carnegie Institution of Washington, 1911.

MALARIA AND THE DEVELOPMENT OF THE SOUTH

The portion of our country east of the Mississippi and south of the Ohio — the South — is one of the most important and rapidly developing areas of the United States. Its development is taking place in spite of the handicap of preventable diseases, but these are yielding to the scientific spirit of Southern physicians and the energy and enterprise of Southern citizens. Hookworm is rapidly being eliminated and the intensive study of pellagra is bound to overcome that serious but less wide-spread disease. Recent agitation and action concerning these two diseases have placed them in the lime-light almost to the exclusion of the older and better-known disease, malaria, which is still a tremendous menace and handicap to industrial progress. Its importance, however, as a source of enormous economic and health waste has not been lost sight of, and at the last meeting of the Southern Medical Association a commission was appointed to study the question of the prevention of malaria in the South and to create and set in motion machinery for its complete eradication. This commission has as its head Capt. Charles F. Craig of the Army Medical School, and among the experts on tropical diseases in its membership is Dr. C. C. Bass, the discoverer of the method of cultivating the malarial plasmodium. As an evidence of the vast importance of malaria as a source of mortality and morbidity, involving tremendous economic waste, Dr. Graham E. Henson of the commission, taking the records of Birmingham, Mobile and Montgomery, the three largest cities of Alabama, and studying the death-rate from malaria in those cities, has estimated that in Alabama last year there were over 70,000 cases of malaria with over 770 deaths, and that the economic loss would total over $2,000,000. Considering the decrease in the earning-power of all those afflicted with the disease and its consequences, it is probable that this estimate is far too low, and when all the states having malaria are considered, the great importance of this question is at once apparent. It becomes not only a question of local health administration but one of the most important conservation problems with which any section of this country has to deal, and deserves the consideration of Congress and the support of the national government more than do some other problems of conservation. While the material resources of the country ought to be conserved they are secondary in importance to the human resources which make them valuable. The work of this commission which originated wholly within the medical profession will be of inestimable benefit to the South, and it should be encouraged and supported by the local and national government until malaria in the South has been as completely exterminated as yellow fever. This is possible, but it is a much greater and more expensive task than the eradication of the latter disease and the burden of it should be borne by the whole people.

THE BEGINNING OF THE END

F. L. Dunlap — better known to the public as "Me-Too Dunlap" — has resigned from his position in the Bureau of Chemistry to take a commercial position at a higher salary than the government paid him. Dunlap, it will be remembered, was the plastic gentleman who took advantage of his chief's absence from Washington to prefer charges against him in the sensational attempt of the "interests" to oust Dr. Wiley from the Department of Agriculture. How trivial and unfounded the charges were is now history. The American public is to be congratulated on Dunlap's resignation. We trust that it marks the beginning of the end of a régime that has made effective work in the Bureau of Chemistry impossible. When McCabe, the self-confessed tamperer with official documents, and Wilson, the well-meaning but superannuated department head, also feel the spirit of resignation moving within them, a nation-wide sigh of relief will go up from those who have suffered from the comparatively unfettered machinations of the food-dopers, "patent-medicine" fakers and drug adulterators.

ANAPHYLAXIS AND HEART BLOCK

Despite the obscurity and uncertainty which still attend the interpretation of many of the striking features of the phenomena spoken of under the term anaphylaxis, the study of these responses has already been full of fruitful suggestions in various domains of pathology. It has furnished a working basis for the investigation of hitherto obscure manifestations of diseases like asthma and hay-fever, and has given clues to potent possibilities in the direction of treatment or prophylaxis. Among the newest indications of the rôle which this unique hypersensitiveness and the consequent anaphylactic reactions may play is their suggested relation to certain types of heart block or disturbances in the coordination of the heart-beat. Dr. John Auer[1] of the Rockefeller Institute in New York City has described peculiar anatomic changes in localized portions of the heart musculature in rabbits which have succumbed to an anaphylactic seizure after being sensitized with horse-serum. Since the alterations involved some of those portions of the heart which are known to be concerned with its conduction processes, it seemed possible that under these conditions the organ might show an upset in the coordination of the heart cians of the staff have been appointed by the health commissioner to supervise the city cases The department is interested in the report of cases before they reach the paralytic stage and suggests that physicians who are called to see an obscure case, exhibiting symptoms of infantile paralysis, report the case promptly to the department, when one of the attending men will be detailed to look after and study the case Early observations are of special value Houses in which there is a case of infantile paralysis will be placarded, but absolute quarantine will not be insisted on unless indicated The health department will work in conjunction with Dr Wade H Frost, U S P H Service, and will inspect every case reported and tabulate in detail all the statistical features It will make, in addition to this, a clinical study of each patient especially as to resultant paralysis or impaired muscular power The department bespeaks the cordial cooperation of every physician in the city in this effort to gain information regarding the cause, treatment and cure of the disease All cases will be treated as strictly confidential, and all assistance rendered will be free of charge The department furthermore agrees to assume complete control, free of charge, of any case on request of the attending physician

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[1] In the Military Surgeon, Aug. 31, 1912.

[1] Auer, John: Anaphylaxie als [illegible] Herzblocks beim Kaninchen, Zentralbl. f. [illegible], 1912, xxvi, 263.

New York City

Personal—Among those returning from Europe recently are Dr and Mrs C Cleveland, Dr and Mrs Alfred Hess, and Drs C F Adams, W H Davis, P H Williams and O J Chase ——Dr and Mrs J J Rainey, Troy, have sailed for Europe

On Lookout for Cholera—Health officers at the port of New York have had orders to be on the watch for cholera on vessels arriving from southern Italy and Sardinia, following the receipt of a cablegram stating that there had been an outbreak of cholera in Sardinia

Extension Course in Nervous Diseases—A course of two weeks devoted to an extension course in nervous and mental diseases is being given at Fordham University School of Medicine Several noted specialists from abroad are participating, among whom are Drs Henry Head and Gordon Holmes of London, Dr Carl Jung of Zurich, Dr Alwyn Knauer of Munich, Dr N Achucarro of Madrid, and Dr Colon K Russel of Montreal

Graduate Courses.—Prof Dr H Straus, Berlin, will deliver a course of lectures October 12 14 15 on diseases of the stomach and kidneys and Prof Dr Carl von Noorden, physician in chief of the City Hospital, Frankfort, Germany, a course on pathology and treatment of diabetes radium therapy and arteriosclerosis, October 28 31 inclusive These two courses will be delivered at the New York Post Graduate Medical School

Health Department Replies to Milk Commission.—The milk commission has sent several complaints regarding the milk supply to the health department and has criticized the department for what seemed to be gross negligence In the reply made by Commissioner Lederle it is stated that the health authorities have been doing their best to guard the milk supply and called attention to the grading of the milk, and to the probability that the inferior milk found in restaurants, hotels and lunch rooms was of that Grade C which is permitted to be sold for cooking purposes The reply states that while it would be desirable to have only bottled milk sold it is impossible at present to secure a sufficient supply of the better grades The department also points out that thirty one prosecutions against milk dealers have been sent to the corporation counsel since July 15

OHIO

Cincinnati Personals—Dr George A Fackler has been appointed president pro tem of the Board of Health and Dr Edward W Walker vice president ——The houses of Drs Harry Townley and Samuel W Craig were burglarized, recently

Hospital News.—The trustees of Miami Valley Hospital, Dayton have formally accepted a gift of $25,000 to be used exclusively for the treatment of specific diseases.——An anonymous gift of $10 000 has been received by the Hospital for Babies Cleveland

Campaign for Babies' Hospital.—The two weeks campaign at Cleveland for the babies' hospital fund brought the contributions to $310 000 The plan of the committee is to raise one million dollars which is to be used for the building, equipment and maintenance of a hospital for children.

Personal—Dr E A Peterson has succeeded Dr Harris G Sherman as chief of the medical inspection bureau of the public schools of Cleveland.——Dr L W Weaver, Columbus has been appointed assistant medical examiner for the Pennsylvania Volunteer Relief Department with headquarters at Fort Wayne, Ind.

OREGON

Personal—Dr E A Sommer, Portland, who has been seriously ill with an infected wound due to a needle puncture during an operation, is reported to be improving ——Dr Wilson McNary, Portland, has been appointed superintendent of the Eastern Oregon Branch Insane Hospital, Pendleton, vice Dr M K. Hall, La Grande, resigned ——Dr G M. Wells, Portland, has returned from a trip around the world

Physicians Denounce Quacks and Advertising.—At the regular meeting of the Portland Ad Club Luncheon, August 21, the program was in the hands of physicians, Dr John F Beaumont, presiding Dr J Chris O'Day spoke on "Medical Advertising, Genuine and Spurious" and bitterly denounced quacks who advertised as "specialists in the treatment of men" and sharply criticised newspapers and periodicals which accept advertisements from this class Dr Walter T Williamson urged the support of the masses of the people to the new medical bills pending

PENNSYLVANIA

State Society Meeting—The Pennsylvania State Medical Society will hold its annual meeting at Scranton, September 23 26, among the entertainments will be a concert at the exhibition hall, September 24, and the president's reception at Hotel Casey, September 25

Sanatorium for Pittsburgh.—Ground will be broken this month for the Pittsburgh Municipal Sanatorium at Warners Station The sanatorium is situated on a site above the Allegheny River about eight miles from the city As present planned, the institution will consist of six buildings, covering about four of the thirteen acres of the site and will accommodate nearly two hundred patients, besides the administration force The buildings to be erected consist of an administration building, two open pavilions for advanced cases, a service building and two large open air cottages for patients in the early stages of the disease

Personal.—Dr Thomas Wray Grayson, Pittsburgh, has gone to Berlin for study ——Dr Patrick F Boyle, South Bethlehem, was operated on in the Jefferson Hospital, Philadelphia, for appendicitis, September 3 ——Dr E J Butler, Wilkes Barre, who was thrown from his carriage and seriously injured, has resumed practice ——Dr John W Bealor, Shamokin, is recovering from an operation for gall stones ——Dr Henry R Douglas has been appointed milk, dairy and meat inspector for the city of Harrisburg ——Dr Thomas S Blair, Harrisburg, has been appointed editor of the *Medical Council*, to succeed the late Dr John Jay Taylor ——Dr Dixon, on August 29 appointed Dr W D Kline Allentown, physician in charge of Tuberculosis Dispensary No 51, to succeed the late Dr Morris F Cawley, Dr Boyd B Snodgrass, Rochester, physician in charge of Tuberculosis Dispensary No 22, to succeed Dr E S H McCauley Beaver resigned, and Dr F W Black, Robertsdale, Huntingdon County as physician in charge of a new tuberculosis dispensary to be opened at Robertsdale

Philadelphia

Personal.—Drs Leon Felderman, C P O'Boyle and J M Rosenthal have resigned from the staff of the Municipal Hospital

Hospital Dedicated.—The Frankfort branch of the Salvation Army dedicated the new Electro Therapeutic Hospital and Dispensary with appropriate ceremonies, September 1

WASHINGTON

Personal—The office of Dr W W Schwabland, White Bluffs was destroyed by fire, August 11 ——Dr Charles B Boudwin Seattle, is reported to be seriously ill in the Seattle General Hospital following a tonsillectomy ——Dr L M Anderson and wife Spokane, have sailed for Europe ——Dr Arthur P Calhoun Fort Steilacoom, was seriously injured in an automobile collision recently

Advisory Staff—Dr B H Roark, Spokane, county physician of Spokane County, has presented the following list as a volunteer consulting staff to care for county patients medicine Drs A M Baker, P D McCormack, W J Howells and H. E Wheeler surgery, Dr H. B Luhn, J G Cunningham, James M Neff and Arthur T R Cunningham, eye, ear nose and throat Drs R. A Greene S B Hopkins, E M Anderson and W S Frost orthopedic surgery, Dr C L Eikenbary, and pathology and bacteriology, Dr M. M Patton.

WISCONSIN

Hospital for Oshkosh.—Plans have been drawn for a new building for the Lakeside Sanatorium, Oshkosh, to be erected at a cost of $50,000. The institution will be used as a general hospital and sanatorium.

Flower Day Announced.—The faculty and alumni of the Wisconsin College of Physicians and Surgeons announce that they will give a flower day for the benefit of their free dispensary at Fourth Street and Reservoir Avenue, Milwaukee, on September 21.

Personal.—Dr. and Mrs. A. G. Hovde, Superior, have returned after a year in Europe.——Dr. George T. Hegner, resident physician at the Emergency Hospital, Milwaukee, has resigned and will enter practice in Appleton, October 1.——Dr. and Mrs. William H. Bartran, Green Bay, have returned from Europe.——Dr. O. P. Schnetzky, Milwaukee, was thrown from his car recently and seriously injured.——Dr. Gustav Schmitt has been elected president of the Count von Steuben Monument Association.

GENERAL

A Clinical Week.—For the week preceding the meeting of the Mississippi Valley Medical Association in Chicago, October 22-24, and for the two days following the meeting, a schedule of clinics is being arranged, to include medicine, surgery, special branches and research work in laboratories.

International Gynecologic Congress.—A cable dispatch states that the sixth International Congress of Gynecology opened at Berlin, with a good attendance, September 9. The invitation of the United States to hold the next congress in this country was officially accepted, and Dr. J. Riddle Goffe of New York was chosen president-elect.

Austrian Otologist in America.—Dr. Erich Ruttin, assistant in the Royal University Ear Clinic, Vienna, is making a tour of the United States. He arrived in New York August 5, then went to Boston, and then to Niagara Falls to read a paper before the American Academy of Ophthalmology and Oto-Laryngology, and from there went to the Pacific coast.

Electro-Therapeutic Election.—At the annual meeting of the American Electro-Therapeutic Association in Richmond, Va., last week, the following officers were elected: president, Dr. F. Howard Humphris, London, England; vice-presidents, Drs. George E. Pfahler, Philadelphia, and E. C. Titus, New York City, and secretary, Dr. J. W. Travell, New York City.

Meeting of Colored Physicians.—The Negro National Medical Association held its fourteenth annual meeting in Tuskegee, Ala., August 20-21 and selected Nashville as its next place of meeting. The following officers were elected: president, Dr. J. A. Kenney, Tuskegee, Ala.; vice-presidents, Drs. D. A. Ferguson, Richmond, Va., and C. M. Wilkerson, Mobile, Ala.; secretary, Dr. Walter G. Alexander, Orange, N. J., and assistant secretary, Dr. E. P. Roberts, New York City.

Measures to Restrict Tuberculosis in India.—One of the prominent Parsees of Bombay has recently guaranteed an annual fund of $5,000 for fifteen years to aid in the suppression of tuberculosis. At present there is no municipal tuberculosis hospital there, but public interest is being aroused and an active antituberculosis movement seems to have been inaugurated. The introduction of medical inspection of schools is also being considered.

The Study of Pellagra.—The National Association for the Study of Pellagra will hold its second triennial meeting in Columbia, S. C., October 3-4, with headquarters at the State Hospital for the Insane. The morning session will be devoted to addresses of welcome, the address of the president and business. During the afternoon session the etiology, epidemiology and statistics of pellagra will be discussed, together with local history and diagnosis. In the evening an address will be delivered by Surgeon-General Rupert Blue, U. S. P. H. Service. The work of the second day will consist of papers on laboratory investigations of pellagra and clinical features and miscellaneous aspects of the disease, and in the evening there will be an exhibition of lantern slides illustrative of pellagra.

Unauthorized Insurance Agent Still Operating.—A warning was published in THE JOURNAL, August 24, p. 601, quoting complaints from physicians that they had been victimized by a Sumner P. Hinckley, who represented himself as an agent of the Conservative Life Insurance Company of Wheeling, W. Va. It was the old story of physicians paying good money to a stranger. A letter from the company states that it has no license to issue insurance policies in Illinois, that Hinckley is not its agent, and that he is collecting money under false pretenses. Since the previous notice was published, this man has been reported as operating in the following Illinois cities: Peoria, Chicago, Decatur, Danville, Rock Island and Rockford, and also in Toledo, Ohio. Warrants are out for his arrest, and it will be a service to those who have been victimized as well as a protection to the profession in general, if anyone who learns his whereabouts will report him to the local police and show them this notice. The police will telegraph Sheriff F. G. Minor of Peoria, Ill., who holds a warrant for Hinckley. The telegraphic reply from Sheriff Minor will be an authorization to the local officials to arrest and hold the man as a fugitive from justice.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 31, 1912.

The Case of Plague in Liverpool

The case of plague in a boy admitted to a hospital in Liverpool with a diagnosis of appendicitis has been reported in a previous letter to THE JOURNAL. The boy has been treated with serum and is making a good recovery. Every precaution has been taken to prevent the spread of the disease; the boy's family has been isolated and all other persons connected kept under close supervision. An examination of the rats in the neighborhood is being systematically made.

The Declining Birth Rate

The registrar-general's summary for 1911, which has just been issued, again shows a fall in the birth-rate in England and Wales. The marriages registered last year numbered 274,577, corresponding to a rate of 15.2 per thousand of population. The number of births was 881,241, being in the proportion of 24.4 per thousand. The deaths numbered 527,864, or 14.6 per thousand. The marriage-rate was 0.2 per thousand above that in the previous year, but 0.3 below the average for the preceding ten years. A decline of 0.7 per thousand is recorded in the birth-rate when compared with that of 1910, which was the lowest on record, and last year's rate was 2.8 below the average of the preceding ten years. The death-rate was 1.1 above that in 1910, the lowest yet recorded, but was 0.8 below the average for the preceding ten years. Infantile mortality, measured by the proportion of deaths under one year to registered births, was 130 per thousand, or twenty-five above the rate in 1910 and three above the ten years' average. This excess was confined to the third quarter of the year, when diarrheal diseases were prevalent and the death-rate among infants was sixty per thousand. The deaths attributed to different forms of violence numbered 20,103, a rate of 0.26 per thousand of population, which is 0.1 below the average for the preceding ten years.

Vaccination Exemption

The increasing exemptions from vaccination since 1899, when the act came into force allowing parents who have a conscientious objection to vaccination to have their children exempted, is causing great concern to the public health authorities, because of the danger of an epidemic of smallpox. As an example, the case of the large metropolitan borough of Hackney may be taken. During the last year 5,413 births were registered and the number of children vaccinated accounted for only 47.4 per cent. The same tendency is shown throughout the whole of England and Wales. Thus the percentages of exemptions to births were as follows: 1908, 17.3; 1909, 20.9; 1910, 25.7; 1911, 28.2.

Women in the Medical Profession

Sir William Collins, Vice-Chancellor of the University of London, in distributing the prizes at the London School of Medicine for Women showed the great strides in the professions made by women in recent years. The University of London was the first university in the United Kingdom to fling its doors wide open to women under the same conditions as men. There are now on its list over 2,000 bachelors of arts, 600 bachelors of science, 180 masters of arts, 170 bachelors of medicine, eighty doctors of medicine, twenty [illegible] doctors of science, six masters of surgery, four bachelors of law, four bachelors of divinity, three doctors of literature and two doctors of law—all women. He [illegible] with [illegible] fact on the larger employment of educated women in administrative offices and secretarial duties [illegible] with higher education and university work. In [illegible] asylums and in school administration [illegible] large area of usefulness for qualified [illegible] believed that the advent of [illegible] medical [illegible] would operate in the direction of importing into it high ideals and aspirations after the true, the beautiful and the good, which would redeem it from a certain commercialism and materialism which are apt to beset it to day

A Tracheotomy Tube Worn for Fifty Years

At the Royal Society of Medicine, Dr St Clair Thomson showed a tracheotomy tube which had been worn by a woman, off and on, for sixteen years Frequently the tube was not changed more than once in two years Altogether, she had worn a tube for over fifty years The patient did not suffer from bronchitis more than other old people and died of senility at the age of 81 While the value of nasal respiration cannot be questioned, this case shows what wonderful compensations Nature can accomplish and that in certain cases of laryngeal stenosis it may be wiser to put up with a tracheotomy tube than risk uncertain operations In the discussion which followed, the case was mentioned of a coachman who wore a tracheotomy tube for seventeen years and drove about in all weathers Sir Felix Semon corroborated the statement that tracheotomy tubes could be worn for an almost indefinite time without fear of bronchitis

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug 23, 1912

Treatment of Arterial Hypertension by Electric Stimulation of the Abdomen

Professor Doumer read an interesting paper on this subject at a recent session of the Académie des Sciences He observed that intense voltaization of the abdomen exercises a manifest influence on the peripheral circulation, shown objectively by the lowering of arterial tension measured at the radial pulse in subjects with hypertension, and subjectively by diminution or even complete disappearance of the disturbances which accompany hypertension, such as noises in the head, cold feet and hands, vertigo, etc Doumer believes that electricity acts not by directly producing vasodilatation but rather by modifying the pathologic conditions of the adrenals He advises the use, by preference of intense voltaization but there is no objection to the additional use of faradization under the form of galvanofaradization Alternating currents may also be used The technic is the same as that for the treatment of mucomembranous colitis except that one of the electrodes is placed at the level of the eleventh or twelfth dorsal or the first lumbar vertebra

Average Medical Expense per Family

Dr Chapon has endeavored to ascertain by statistics drawn from his own practice and that of several colleagues the cost of medical service to the father of a family He investigated the accounts of fifty families in moderate circumstances, each composed of four persons for a period of ten years The average annual medical expense per family was about $8 (40 francs) In twenty families composed of five persons each there was an annual average of $11 (55 francs), and in ten families of six persons each an average annual expense of $13 (65 francs) the minimum fee per visit being $1 (5 francs) in each case

The Reorganization of Medical Studies

The decree of July 29 changing the requirements of the *facultés de médecine* removed medical natural history from the programs of examinations and substituted bacteriology or parasitology In the *Semaine Médicale*, Prof P Vuillemin criticizes this reform showing that bacteriology and parasitology do not contain the essentials of medical natural history The new decree he says, leaves no room for the organisms which are neither bacteria nor parasites venomous animals, poisonous fungi etc with which physicians have been none too well acquainted hitherto making the accidents which happen from these causes all the more deplorable Moreover, the reform appears to him open to criticism from a more essential point of view It confirms a fault of method which disturbs the equilibrium of our teaching system whose organization rests on the division of labor and the specialization of departments Parasitology is not a simple science but a combination of natural history pathologic anatomy pathology and the other branches of medicine involved in the action of parasites The same consideration applies even more strongly to bacteriology, a still more complex science since it embraces not only a part of parasitology but also the study of the bacteria concerned in agriculture and industry etc

Campaign Against Alcohol in the French Colonies

The government is engaged in fighting alcohol in French West Africa A decree of August 2 raised the tax of alcohol in this colony from $40 to $43 (200 to 215 francs) for French alcohol, and $51 (255 francs) for foreign alcohol

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug 22, 1912

Personal

Professor Quincke, formerly director of the medical clinic at Kiel, who has been living for some years in Frankfort a M, celebrated his seventieth birthday August 26

Prof O Müller, a former assistant of Professor Romberg, has been appointed his (Romberg's) successor in the chair of internal medicine at Tübingen

Misleading Statements From Antivaccinationists

The antivaccinationists have continually endeavored to discredit vaccination and to oppose the requirement of compulsory vaccination because in some circumstances the consequences are injurious For the dissemination of their propaganda they have begun to publish a special organ As an illustration of this agitation some cases are cited in the semiofficial "Berl Korr," which are as follows

Their paper, the *Antivaccinationist*, recently gave a letter from a public school teacher, this was reprinted by a Berlin paper with the remark that it was about time for the government to abandon its haughty negative standpoint and, at least, to accede to the modest demands of the antivaccinationists, namely, to allow an inquiry by an impartial commission into the action of compulsory vaccination The facts in the case published were said to be as follows The father of a boy had reported to the *Antivaccinationist* that his child, born of healthy parents and grandparents, October 8, 1905, was successfully vaccinated September 26, 1906 Bad results of the vaccination occurred as early as ten days afterwards the enlarged pupils no longer reacted to light and shadow After three months three carbuncles developed at the point of the vaccination, from which pus and black blood flowed after they were opened Five years had passed since and the condition of the child did not improve The right eye was blind, the left eye had a slight power of vision To this account were added bitter complaints about the destruction of the happiness of the family, etc At the end was given a pretended statement of a Magdeburg oculist, according to which the child would not have lost his vision if the vaccination had not been done

Official investigations with reference to these statements gave the following facts The child of the school teacher, who made a complaint on account of injury through vaccination, was vaccinated successfully in the ordinary way with unobjectionable lymph The vaccinationist, who was consulted two weeks after the vaccination because the child could not see, found no pathologic condition of any kind on the vaccinated arm The Magdeburg oculist who was consulted seventeen days after the vaccination established the existence of a congenital syphilitic affection and ordered an antisyphilitic treatment Nothing was noted in his records about the ulcerative process This diagnosis was soon after confirmed by two other physicians Four weeks after the vaccination a pustule on the upper arm of the child was observed by a physician, this healed kindly in a short time The physician found no connection between this pustule and the vaccination Finally the claim of the father as to the statement of the physician was found to be incorrect, the physician had expressly referred the disease of the eye to a cause which was operative for a much longer time The government has therefore imposed a fine of twenty marks on the teacher

A second case is connected with a notice to the government from the association of opponents of compulsory vaccination (Verein der Impfzwanggegner) In one Hanover newspaper this notice was made the basis of an appeal to the Reichstag that the latter body should abolish the unfortunate requirement for vaccination According to the statement the 2½ year old child of a woman in Hanover Linden died on the ninth day after vaccination The cause of the death was given as blood poisoning The physician who was called to attend the child found pneumonia After the child died, under symptoms of increasing heart weakness a post mortem was made which also gave this as the probable cause of death The findings showed that neither the sickness nor the death of the child could be referred to vaccination

In a third case vaccination was made responsible by the antivaccinationists *(Bergischer Impfgegnerverein)* for the death of a child. But the officially ascertained facts were completely contradictory to this assumption. The child was attacked with diphtheria and is said to have been sent by the attending physician to a hospital for operation, but died on the way. The mother gave vaccination as the cause of death, in response to printed questions on a card given to her by the antivaccinationists, although she very well understood that the child had died of diphtheria.

Diphtheria in Berlin and in the Empire

As the result of the interest which the increase of diphtheria during the past few years has excited, particularly in Berlin, official investigations have been instituted on the morbidity and mortality from diphtheria in the Prussian state and in the municipal district of Berlin from 1902 to 1911. They show the following facts. The number of cases of diphtheria in Prussia has risen from 54 848 in 1902 to 83 821 in 1910, and to 96,839 in 1911; likewise in Berlin it has increased from 1,485 in 1902 to 6,061 in 1910. On the other hand, the number of deaths has fallen in the period from 1902 to 1910 in the empire from 14 175 to 9 683 and in Berlin has increased from 239 to 695. Reckoned for 10 000 of population, the relative number of cases in the empire has increased from 15.41 in 1902 to 20.87 in 1910 and in Berlin from 7.68 in 1902 to 28.58 in 1910. The relative number of deaths has fallen in the empire from 4.05 in 1902 to 2.48 in 1910, while in Berlin during the same period it has risen from 1.25 to 3.11. From this it is evident that while in the empire the death rate has diminished (in 1876 it was 16.33) this is not the case in Berlin. As a consequence it becomes increasingly necessary that the authorities in view of the extensive epidemic in the metropolis of the empire should enforce with the greatest strictness the sanitary regulations, particularly to make use to the greatest extent of isolation and disinfection, as well as to give information as soon as possible of the results of bacteriologic examination.

Influence of the Use of Alcohol

As a result of official investigation of the effect of the use of alcohol on the frequency and the character of crime, it is shown that there were in 1910 8 674 convictions on account of crime and offence against the imperial law, in which the criminal act was done in a condition of drunkenness and further 190 convictions in which the criminal act could be referred to the habitual use of alcohol. Of the 8 864 persons convicted twenty eight were women, 166 were under 18 years of age, 2,925 (33 per cent.) were married or widowed, twenty four (0.3 per cent.) were divorced. In 150 cases no punishment could be imposed because the criminal at the time of committing the act was in a state of mental disturbance which prevented him from exercising his will.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 10, 1912.

A New Radio-Active Spring in Joachimsthal

In Joachimsthal in Bohemia, where are the most powerful of all radio active healing springs, a new spring has been discovered. In searching the mine for pitchblend and radium, a water current was struck which proved to be four times as radio active as the strongest hitherto known water. The new spring will be added at once to the baths of the *Curanstalt* or sanatorium, owned by the government. The new water has 8 600 'Mache' units, while the next strongest spring has only 2 280 units.

Sale of Gastein Waters and Baths

The famous baths and waters of Gastein in the Alps, which have hitherto been the property of the Emperor of Austria, have been sold to the community of Gastein, which has been trying for a long time to obtain possession of the springs. Extensive improvements will now be made, so that if necessary, over a thousand baths will be ready for use daily.

Reduced Requirements for Physical Fitness of Recruits for the Army

The new army bill, which has just now become law, is [illegible] to increase the number of recruits, therefore, several [illegible] of the previously strict and severe requirements of physical fitness of recruits have been made. Thus, formerly the man had to stand at least 155 cm. (5 feet) [illegible], and had to have an expiratory circumference of the thorax at the nipple line of at least 80 cm. (32 inches). The new law requires a minimum of 150 cm. (4 feet 10 inches) and a circumference not below 75 cm. (30 inches). Slight anemia, neurasthenia and general weakness of a mild degree which might be cured by proper food and treatment (in the opinion of the recruiting commission!) will no longer entitle the man to exemption from military service. Such recruits will serve as clerks or as personal servants of the officers thus liberating others more fit for actual service. Persons engaged in industrial professions can be made recruits and be employed in their respective vocation in the army. The decision of the army physician acting at the recruiting commission is not to be at all binding for the recruiting officer. The physician is simply brought down to the level of an advisory person even in matters purely medical. This feature will meet with justifiable opposition, for the fitness of the army is intimately connected with the fitness of the individual soldier which nobody can judge better than the physician.

Anti-Alcohol Movement in the Army

We have in our army a section of officers and men who are strict abstainers from alcohol. In the Tyrol in the mountainous districts where the Alps go down seldom below 3 000 feet, and where numerous military stations are situated from 4 000 to 5,000 feet high, are stationed a fair number of artillery and infantry regiments. Prolonged experiments have convinced the officers that whenever hard physical or mental work is to be done, or when the energy of the men is put to the severest tests (mountain climbing, exploring snow and glaciers), absolute abstinence from alcohol is requisite for success. Thus these mountaineers or *Alpenjäger*, as they are called here have been forbidden to drink any kind of alcohol except when ordered by the physician, for instance, as a means of resuscitation after exhaustion. The officers of the general staff are also taught to abstain from drink and ere long we may be confronted with an order prohibiting alcohol in the army altogether. For continental ideas this would be an entirely novel departure from inherited customs.

Marriages

Delbert Linscott Jackson, M.D., Boston, to Miss Florence Lyon Fisher of Cincinnati, at the Pines, Lyons Falls, N. Y., August 29.

Henry B. Carriel, M.D., Jacksonville, Ill., to **Joy Ricketts**, M.D., of South Bartonville, Ill., at Batavia, Ill., September 3.

Charles Oliver Bulger, M.D., Greenfield, Ill., to Miss Pauline Smith of Fayette, Ill., at Chicago, August 14.

Lieut. George Burgess Foster, M. C., U. S. Army, to Miss Sara Ellis Thomas of Leavenworth, Kan., September 4.

Harold Ladd Lamb, M.D., Sauk Centre, Minn., to Miss Grace Whiting of Spring Valley, Minn., August 7.

John Berton Carnett, M.D., Philadelphia, to Miss Alice Adele Gemmill of Chestertown, Md., August 31.

William Armstrong DeWitt, M.D., Blossburg, Pa., to Miss Mary Day Treat of Wayne, Pa., August 28.

John H. S. Connor, M.D., Boston, to Miss Alice [illegible] Carmichael of Cambridge, Mass., September 4.

Carlyle Newton Haynes, M.D., Sayre, Pa., to Mi[illegible] B[illegible] Irene Barron of Ashland, Pa., September 4.

Capt. William A. Duncan, M. C., U. S. Army, to Mi[illegible] Ezma Ellis of Russellville, Ky., August 7.

Walter Bradford Metcalf, M.D., Chicago, to Mi[illegible] M. Jump of Houston, Del., August 2[illegible].

Ernestine Dorchert, M.D., Chicago, and L[illegible] [illegible]rence of New York City, August 13.

Robert Payne Beckwith, M.D., to M[illegible] E[illegible] C[illegible] both of Philadelphia, September 2.

Lucia C. Hoyer, M.D., Milwaukee, and Ca[illegible] H[illegible] Huth, Jr., of Chicago, August 2[illegible].

Emmett Black, M.D., Th[illegible] [illegible] Jenkins of Pittsburgh, [illegible]

Edwin Clyde M[illegible], M.D., C[illegible] Margaret S. A[illegible] [illegible]

Frank Albert F[illegible], M.D., [illegible] of Ord, Neb., Au[illegible]

Ermy E. N[illegible] [illegible] Boston, August [illegible]

Deaths

William Daniel Lamb, M D Jefferson Medical College, 1846, first moderator of the town of Lawrence, Mass, a member of the Massachusetts Medical Society, surgeon of Volunteers during the Civil War, for sixty six years a practitioner of Lawrence, president of the common council in 1869, for many years coronor of Essex District, a member of the first school committee of the town and for twenty five years a director of the Pemberton National Bank, died at his home, August 26, from senile debility, aged 88

James Edward Newcomb, M D College of Physicians and Surgeons, New York City, 1883, a member of the Medical Society of the State of New York, the American Laryngological Association and New York Academy of Medicine, professor of clinical surgery in the department of laryngology and rhinology in Cornell University Medical College, consulting laryngologist to Roosevelt Hospital, New York City, died at his summer home in Lake Kushaqua in the Adirondacks, August 27 aged 55

William James Parker, M D Bellevue Hospital Medical College, 1879, a member of the Medical Society of New Jersey and Association of Military Surgeons of the United States, surgeon of the Fourth Infantry, N G, N J, and later deputy surgeon general and surgeon general of the state, who was retired from duty about a year ago, a member of the staff of St Francis' and the Jersey City Hospital, died at the home of his mother in Jersey City, August 25, from typhoid fever, aged 54

Charles E Gayer, M D Barnes Medical College, St Louis, 1898, a member of the American Medical Association, president of the Colfax County (N Mex) Medical Society, a practitioner of Raton N Mex, for fourteen years, surgeon to the New Mexico Colorado Coal and Mining Company, and superintendent of the Territorial Miners' Hospital Raton, died in that institution, August 26, from acute dilatation of the stomach following an operation for appendicitis, aged 39

Warren H Hunter, M D Rush Medical College, 1896, a member of the Illinois State Medical Society, assistant professor of medicolegal pathology in his alma mater, for eight years physician of Cook County, and for four years chief coroner's physician died in the West Side Hospital Chicago, September 4, from septicemia due to infection received while conducting autopsies aged 45

Charles F Hopkins M D College of Physicians and Surgeons Baltimore Md 1884, a member of the American Medical Association for twenty years a practitioner and once mayor of Chinook Mont, local surgeon of the Great Northern Railway health officer of Chouteau County, died at his home in Long Beach Cal August 18 from cerebral hemorrhage aged 58

Ernest Harold Sparrow, M D Harvard Medical School, 1906 a member of the Massachusetts Medical Society, formerly inspector of milk and vinegar for Cambridge, and house physician at the Cambridge Hospital died at his home in Cambridge August 27 after an operation recently performed at Johns Hopkins Hospital aged 32

Charles A. Wilkerson, M D New York University, New York City 1875 a member of the Medical Association of the State of Alabama and a member of the council of that association, a leading practitioner of Perry County, and for more than twenty years a director of Judson College, died at his home in Marion August 5 aged 58

Lawson Harrill, M D Jefferson Medical College, 1861, a Confederate veteran a member of the legislature of North Carolina from Wilkes County in 1878 state small pox inspector during the epidemic of 1900, mayor and chairman of the school board of Statesville, N C, died at his home August 29 aged 74

John D Kotheimer, M.D Cleveland (Ohio) College of Physicians and Surgeons 1885 one of the founders of the Mahoning Valley Hospital a member of the board of education of Youngstown Ohio from 1895 to 1900 died at his home at that city August 10 from cerebral hemorrhage, aged 50

Earl Philip Warren, M D College of Physicians and Surgeons New York City 1902 of Niagara Falls N Y, died in the Memorial Hospital in that city August 12, from ptomain poisoning following an attack of typhoid aged 39

John W Anderson, M.D Southern Medical College Atlanta 1884 mayor of [illegible], Ga, died at his home, August 25, aged [illegible]

James Alexander Paterson, M.D Queens University, Kingston, Ont, 1889, a member of the American Medical Association, for five years surgeon in the Northwest Mounted Police and later a practitioner of Winnipeg, Man, and Iron River, Wis, died at his home in Iron River, June 27, from angina pectoris, aged 47

Horace S Lewars, M D University of Pennsylvania, 1890, a veteran of the Spanish American War and for twenty four years an officer of the National Guard of Pennsylvania, a practitioner of Philadelphia, died in the German Hospital in that city, August 26, from cerebral hemorrhage

Howard G Purnell, M.D Jefferson Medical College, 1892, of Ansonville, Pa, formerly a member of the American Medical Association, a member of the Medical Society of the State of Pennsylvania, died in the Methodist Hospital, Philadelphia, August 9, from nephritis, aged 43

Jeffrey Conway O'Connell, M D George Washington University, Washington D C, 1873, one of the oldest practitioners of Washington, an authority on the Gaelic language and literature, died at his home in Washington, August 28, from heart disease, aged 72

Charles Casbrooke Denniston, M D Bellevue Hospital Medical College, 1875, formerly of Crookston, Minn, died in Medford, Ore, August 23 from the results of a gunshot wound of the head, self inflicted, while despondent on account of ill health, aged 60

William C Shackleford, M D University of Virginia, Charlottesville, 1858, University of Pennsylvania, Philadelphia, 1860, surgeon of the Second Virginia Infantry, C S A, during the Civil War, died at his home in Stony Point, Va, about August 26

Henry Hoffman Miller, M D New York University, New York City, 1881, a member of the Hunterdon County (N J) Medical Society, died at his home in Whitehouse, N J, August 27, from heart disease, following an attack of pneumonia, aged 58

Lyman Ulysses Rentz, M D Southern Medical College, Atlanta, Ga, 1893, of Cocoanut Grove, Fla, formerly of Brooksville, Fla and Dupont, Ga, at one time local surgeon for the Atlantic Coast Line, died in Valdosta, Ga, August 9, aged 42

William Harold Vary, M D Hahnemann Medical College, Chicago, 1888, College of Physicians and Surgeons, Chicago, 1898, a member of the American Medical Association, died at his home in Oak Park, Ill, August 29, aged 49

Charles Van Wye, M D Louisville (Ky) Medical College, 1884, a veteran of the Civil War, for many years a resident of Lynn and Sullivan counties, Mo, died suddenly in front of his office in Browning, Mo, August 20

Benjamin F O'Rear (license, Texas 1907, Fifth Judicial District Board, 1892), health officer of Marion County, Texas, a member of the State Medical Association of Texas, died at his home in Jefferson, August 6

William Kirkwood Robinson, M.D University of Maryland, Baltimore, 1893, a member of the American Medical Association, died at his home in Los Angeles, Cal, August 25, from malignant disease, aged 42

David John Price, M D Hahnemann Medical College, Philadelphia 1897 vice president of the Shenandoah (Pa) Medical Society, died at his home in Shenandoah, August 28, from cerebral hemorrhage aged 38

Henry Francis Borden, M D Harvard Medical School, 1869 a member of the Massachusetts Medical Society and one of the oldest practitioners of Brockton, Mass, died in his home August 8, aged 67

Henry Smith Atwood, for nearly fifty years a practitioner of St Louis Mo Pittsburg, Kan, and Galena Kan, died at his home in Galena, July 25, from senile debility, aged 84

John A. McCreary, M D Medical College of the State of South Carolina Charleston, S C, 1886, died suddenly at his home in Williston, S C, August 9

Adam Walrath, M.D Albany (N Y) Medical College, 1870, died at his home in St Johnsville, N Y, August 7 from cerebral hemorrhage, aged 50

Robert L Parkin, M D Detroit College of Medicine, 1896, died at his home in Romeo, Mich, August 27, from heart disease aged 51

Joseph N Strange (license Arkansas, 1903), of Hartford was shot and killed in a pistol duel in Hartford, August 24, aged 45

Horace H. Wolff, M.D Baltimore Medical College, 1890, died at his home in Providence, R. I., in August, aged 47

The Propaganda for Reform

CONVICTIONS UNDER THE FOOD AND DRUGS ACT*

WOOD'S SOOTHING SYRUP

William J. Wood, Trenton, N. J., shipped in interstate commerce a product called Wood's Soothing Syrup. Some of the claims made on the labels for this preparation were:

> It is a sure cure for croup.
>
> A preventive against taking cold.
>
> For sick stomach and general debility.
>
> For asthma and phthisic this extraordinary remedy affords immediate relief.
>
> Affords speedy relief in all cases of acute pains, gripings, severe vomiting, bowel complaints, teething, restlessness, sore throat, whooping cough, all coughs and colds, all throat, bronchial and nervous affections.

When analyzed by the government chemists, it was reported to be a watery alcoholic solution of opium, aromatic bodies, sugar, inorganic salts and undetermined matter. It was declared misbranded, in that the amount of alcohol and opium was misstated on the label. W. J. Wood pleaded non vult and the court suspended sentence.—[*Notice of Judgment No. 1322.*]

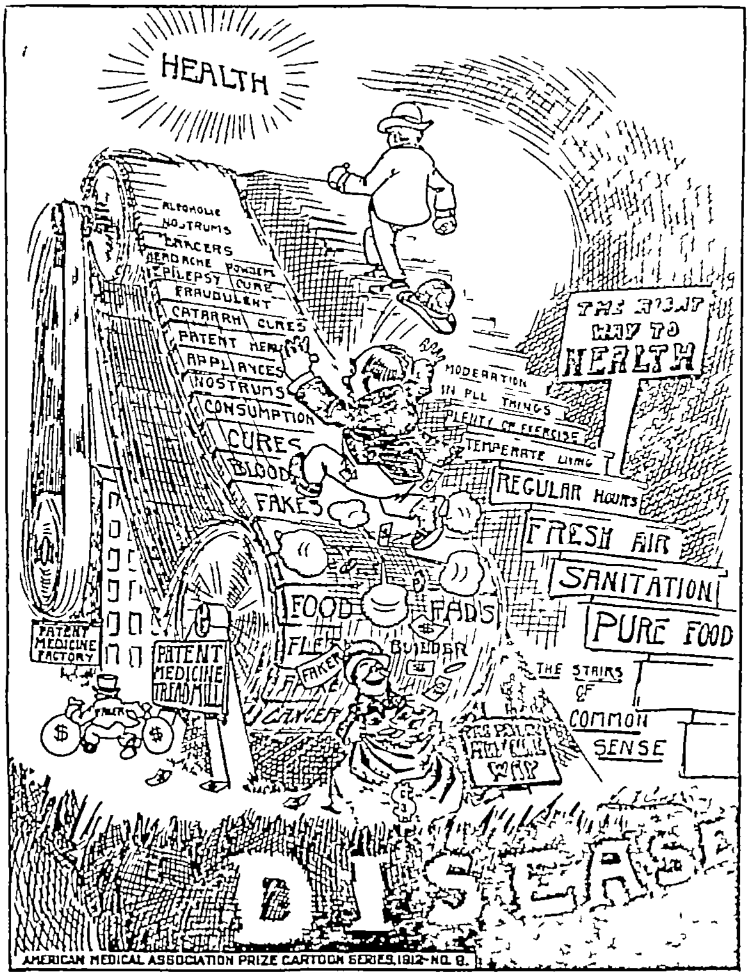
RALSTON'S SELECT BRAN AND ACME DIAPETIC FLOUR

The Acme Mills Company of Portland, Ore., who claim to be the "only authorized manufacturers for the Pacific Coast of Ralston Health Breakfast Foods," was charged with misbranding two products "Ralston Select Bran" and "Acme Diabetic Flour." "Ralston Select Bran" was sold under the following claims:

> Prepared as a beverage. It is the most refreshing drink that ever passed human lips.
>
> The phosphorus contained in the bran is vitally necessary for the development and vigor of the human frame."
>
> The drain on the system is replenished by the phosphatic nourishment contained in this simple but wonderful beverage.
>
> It aids digestion, cures torpidity of the liver, gives tone and color to the complexion, brightness to the eye, and is both nerve and brain food.

Misbranding was alleged because, as a matter of fact, the phosphorus said to be contained in "Ralston Select Bran" was not "vitally necessary for the development and vigor of the human frame." Furthermore, the label represented that the product contained and had some special properties not common to ordinary bran when, as a matter of fact, it was nothing more than ordinary bran. It was also declared misbranded because it did not aid digestion, cure torpidity of the liver, give tone and color to the complexion or brightness to the eye, nor was it a nerve or a brain food. In the words of the government report "It had no virtues or properties beyond those of ordinary bran."

"Acme Diabetic Flour" was sold under the claim that it was "milled by special process to preserve gluten properties of wheat." While this statement was calculated and intended to give purchasers the idea that gluten was the principal ingredient of Acme Diabetic Flour, the analyses of the government chemists showed that the product did not contain any more gluten than is found in ordinary whole wheat flour. It was further declared misbranded in that the stuff was sold for the use of those afflicted with diabetes to whom starch is dangerous. Yet Acme Diabetic Flour contained 71.4 per cent. starch—an amount equal to that found in ordinary flour. The defendant was found guilty and filed a motion for a new trial. The motion was overruled and the court imposed a fine of $50 and costs.—[*Notice of Judgment No. 1507.*]



AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES, 1912—NO. 8.

WHICH ARE YOU TAKING, THE STAIRS OR THE TREADMILL?

DR. CALDWELL'S RHEUMATISM CURE

John W. Horter—the first name being a fictitious one—of New York shipped to the state of Tennessee a consignment of Dr. Caldwell's Rheumatism Cure. This nostrum was sold under the following claims:

> Sure to cure.
>
> Cures by expelling the acids from the blood.
>
> Restores the liver, kidneys and the skin to a healthy condition—thus effecting a permanent cure.
>
> A certain cure for acute and chronic rheumatism in all its forms, gout, sciatica and lumbago.

The stuff was analyzed by the chemists of the Bureau of Chemistry who reported finding:

Alcohol Salicylic Acid [illegible]

Besides these, traces of bromids, a chlorid, (an alkaloid not identified) sodium and phosphorus were found. Misbranding was alleged in that while the preparation contained 11.5 per cent. of alcohol no statement was made on the label to that effect. Horter pleaded guilty and was fined [illegible].—[*Notice of Judgment No. 17[illegible].*]

DR. CALDWELL'S ANTI-PAIN TABLETS

Dr. Caldwell's Anti-Pain Tablets, put out by the Dr. Caldwell Medical Company, [illegible] product shipped in interstate commerce [illegible]. These tablets when analyzed by the government chemists [illegible] reported to contain

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* One hundred and forty-eight convictions previously reported in popular form are issued in an illustrated pamphlet, Convictions, price 6 cents.

Acetanilid	51.4 per cent
Caffein	12.3 per cent
Corn starch	23.2 per cent
Camphor	present

Although these tablets contained more than 50 per cent. acetanilid, the presence of this drug was not declared on the label Hence the charge of misbranding, to which Horter pleaded guilty and was fined another $200—[*Notice of Judgment No 1545*]

HOFF'S CONSUMPTION CURE

Hoff's Consumption Cure was exposed in The Journal, Feb 6 1909, p 489, and the matter appears in 'Nostrums and Quackery" It is sold by Maurice C Schlesinger who does business under the firm name of Bendiner & Schlesinger, New York The following claims were made for the stuff either in or on the package in which it was sold

> Prof. Hoff's Cure for Consumption
>
> A positive remedy from the recipe of the author
>
> Were the lungs alone affected Professor Hoff's Consumption Cure could be relied on without the assistance of anything else to rid the system entirely of the consumption germs But the kidneys the stomach the liver and the entire digestive tract are all weakened by Consumption and are most likely to require at least a tonic treatment in order that the Professor Hoff Consumption Cure may take hold and do its work

When analyzed by the government chemists, this nostrum was found to contain

Morphin
Cinnamic acid
Potassium
Arsenic

The stuff was declared misbranded first, in that it was not a cure" for consumption or a 'positive remedy", second, that the presence of morphin was not declared, and third, in that it was not true that this drug would rid the system entirely of the germs of consumption, even if a tonic treatment were applied in conjunction therewith

With the 'cure" was a pasteboard box containing another nostrum labeled 'Superlatone" This was the tonic supposed to be used in connection with the 'consumption cure" According to the label Superlatone contained iron Analysis by the government chemists however proved this claim to be false, and Superlatone was therefore, declared misbranded

A third bottle came with the consumption cure, this being labeled 'Adjunct Cough Mixture Used in Conjunction with Prof Hoff's Cure for Consumption' When analyzed, this cough mixture was found to contain

Alcohol
Codein
Chloroform

As the presence of alcohol was not declared on the label, this preparation also was declared misbranded

Bottle No 4 that came with the cure was labeled Concentrated Appolozer's Mixture While analysis demonstrated that this preparation contained nearly 8 (7 88) per cent of alcohol the label declared the presence of only 2 5 per cent Misbranding was therefore alleged in this case also

Package No 5 in the cure' was labeled Kodal Tablets" These tablets were found to contain codein Since there was nothing on the label to indicate the presence of this drug this preparation too was declared misbranded Schlesinger pleaded guilty to the government's charges and the court imposed a fine of $25—[*Notice of Judgment No 1551*]

Correspondence

One Editor's Attitude Toward the Samuels Fraud

To the Editor—Last fall a chronic diabetic patient came into my office and asked me for information concerning a certain nostrum which was administered by dropping the same into the eyes of the patient [The Prof Samuels fraud see The Journal, Dec 24 1910 and "Nostrums and Quackery" p 200] The literature was extensive and the claims were extravagant Every known disease it was said could be cured by this method as the medicine followed the optic nerve directly into the brain and thus through the entire nervous system to every part of the body thereby eradicating disease, purifying the system, etc I asked the patient if he really thought such things were possible by the use of a medicine that must be mild enough not to irritate the delicate membrane of the eye His answer was that Mr Blank, naming a chronic asthmatic, whom I have treated at different times, had used a vial of the medicine and that it had completely cured him of his asthma He used it during July and August, the time of year when he was seldom troubled with the disease Since then he has been as bad as ever

Another diabetic patient died in Platteville during the last winter who had used three bottles of the medicine without benefit Both of these users were poor people who could ill afford to spend $5 per vial which was the cost of the medicine Some time after this I noticed an article in The Journal exposing this fraud, stating that on analysis it was found that the nostrum was only a sugar and salt solution, thus making a very nice profit on a 4 dram vial which sold for $5

This whole affair made such an impression on me that I thought I would do a little missionary work to try and prevent others from falling into the same error by purchasing the nostrum, so I went and interviewed the proprietor of one of our local papers and told him the whole story as I have just related to you and suggested that if he would publish the formula of the medicine the people were buying I would bring him the copy of The Journal containing the analysis and comment thereon, and he could publish the same and I thought it would make good reading for the public, and that I could furnish him many other articles from time to time on the same line that I thought would be interesting reading and be a benefit to the community Did he accept the proposition? Not much! His argument was that the people liked to be humbugged, and he showed me a copy he was then getting ready for the press of a two column article advertising the celebrated (?) syndicate of physicians, which makes this town at stated intervals In other words, if he published anything derogatory to any one class of fakers, he probably wouldn't get the business from others of the same class or in other words the whole business hinged on a money basis entirely

James Oettiker M D, Platteville Wis

Specialism

To the Editor—At a recent convention of otologists a prominent member stated that there was enough work in otology alone to warrant its separation from laryngology and rhinology and that the man who would do good work in the former should refrain from operating in these other fields As a matter of fact, the majority of otologists, even in large cities not only attend nose and throat patients, but also give some attention to ophthalmology In the smaller towns most ophthalmologists are also ear, nose and throat specialists but otology has become largely a matter of brain surgery No man is qualified to do a radical mastoid operation who is not a capable surgeon and a capable brain surgeon at that The exploration of the labyrinth, of the sinuses and the exposure of the dura is the most delicate kind of cerebral surgery The opening of the frontal and ethmoidal sinuses demands the same special knowledge

If therefore there is to be a distinct division between the present eye, ear, nose and throat specialist and the more modern ear surgeon, why not create an entirely new specialty, namely that of cephalogist or craniologist, medical and surgical? The surgical craniologist should be competent to operate on every organ of the head—ear, nose, throat, eye or brain the medical craniologist to diagnose and treat (otherwise than by operation) all disturbances of the brain and the special head organs

A similar division of the abdominal organs might be made abdominal surgery to pertain to surgery on stomach intestines liver, kidney and generative organs male or female and abdominal medicine to confine itself to diagnosis and treatment of non surgical diseases affecting such organs Gynecology as a separate specialty has no longer any reason for existence nor should there be need for the so called genito urinary specialist.

With such a classification of specialists there should come special preparation for those undertaking the specialty. Dr. Jackson of Denver has made an earnest plea for the better training of eye specialists. Eminent surgeons have condemned the poor training of the average man who undertakes abdominal surgery. By placing all major surgery, whether it be on the mastoid, the frontal sinuses, the tonsils, the appendix, the uterus or the penis in the hands of specially trained operators and leaving the diagnosis and non-surgical treatment of these organs in possession of another class of specially trained internists, there can be created a body of well-trained specialists qualified to do what is required of them.

The otologist may by special preparation qualify himself to do brain surgery, but he is then no longer an otologist pure and simple. The gynecologist who removes gall-stones is working outside of his specialty, but there is no reason why a well-equipped modern surgeon should not remove a cataractous lens from the eye as many of the famous surgeons of old were in the habit of doing successfully. The man who would practice surgery, be it of the ear, the nose or any other organ, should not be bothered with the routine treatment or even the tedious examination of patients. He should not even have the responsibility of making a diagnosis. The internist should make all the necessary tests, locate the disease, determine as to its operability or not and then summon the operator, just as the anesthetist is employed. Such cooperation will mean safer and more scientific work, and will do away with much of the amateur surgery of to-day. It will tend to create a group of practicians who will give their entire attention to finer methods of diagnosis and treatment in the various specialties without feeling that unless they perform major operations they are not entitled to be called specialists. There are many good surgeons who are very poor diagnosticians. These, too, will find their proper place. They will not be called on to treat symptoms that they cannot bring into relation with other phenomena. They will find room for their superior technical ability. Surely some rearrangement of the specialties is necessary.

M. V. Ball, Warren, Pa.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

REMOVAL OF TATTOO MARKS

To the Editor:—Do you know of any chemical or drug that will remove or discolor the tattoo ink from the skin?

W. H. Horton, M.D., DeRidder, La.

Answer.—The methods of Variot and of Brault have been recommended for the removal of such marks. The principle in each is to excite an inflammatory process by means of chemical irritants so as to cause destruction of the superficial layers of the skin.

Variot's plan of treatment, according to Brocq, is as follows: First, he places on the tattoo marks a concentrated solution of tannin, and tattoos this in. Then a silver nitrate pencil is rubbed vigorously over the surface until the surface becomes black from the formation of silver tannate in the superficial layers of the skin, and the surface is then washed with water. In the next few days a slight inflammatory reaction occurs, and over the surface treated a closely adherent dark crust forms. After the third or fourth day there is no pain except when there is movement of the muscles under a large crust. Occasionally there is a little suppuration under the crusts, but if secondary infection is avoided no severe inflammation occurs. After fourteen or sixteen days the crust comes off spontaneously, the corium and the epidermis underneath have been repaired, and the locality of the mark is recognizable only by a superficial pink cicatrix which gradually becomes of normal color. A couple of months after the operation the scar is hardly noticeable.

Brault's method of removing tattoo marks consists in tattooing the region previously rendered aseptic with a solution of 30 parts of zinc chlorid to 40 parts of water. The needles with which the tattooing is done are dipped in this solution and the surface is lightly moistened with the same solution after the tattooing. If properly done the resulting inflammation is slight and after a few days there forms a superficial crust which remains about a week and then falls, leaving a slight, eventually almost imperceptible scar. This method succeeds in a few cases but requires skill and care in its application in order to obtain good results and to avoid suppuration and deep cicatrization.

THE INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

To the Editor:—Can you tell me something about the International Congress on Hygiene and Demography? R. D.

To the Editor:—Is there an exhibit of some sort in connection with the hygiene congress at Washington? To whom can I write for full information? M.

Answer.—These and other inquirers have been answered direct, but for the information of others we call attention to the fact that there have been repeated announcements in The Journal concerning this congress. An extended one, giving parts of the extensive program, a survey of the exhibit and the names of those to whom one may write for full information was given in The Journal, August 24, page 601. A statement concerning membership in the congress was given August 17, page 550.

PHYSICIANS AND LOCAL CHAUTAUQUAS

To the Editor:—The chautauqua season is over. Do you know what a chautauqua is? It is a cross between a camp-meeting and vaudeville. The entertainments consist of popular lectures interspersed with brass bands, songs, legerdemain and sometimes *lentem de cercelle*. The lecturers, some of them, are instructive; some of them have lubricated tongues, athletic lips and stale brains, and their forte is ridiculing medical men and the medical profession by telling jokes that were common before the flood, doubtless were told in Ham's barber shop in the ark and were immensely enjoyed by saurian intellects who never heard of Drs. Reed, Carroll, Lazear, Agramonte or Gorgas. The opaque gas-maker is far too frequent a public educator. Joseph T. Clegg, Siloam Springs, Ark.

Answer.—If a lecture course or chautauqua does not adequately or fairly represent medical science of to-day, it may be the fault of the medical profession. In many communities prominent medical men are on the chautauqua programs telling the people about medical progress and enlightening them on hygiene and healthful living. Some of these numbers are among the most interesting and well attended on the program. It will usually be found that the committee on management will welcome assistance from the medical profession, if it is a harmonious, unified body of educated men. County societies and groups of physicians who want assistance in this work, or who want to find out what other societies are doing and what speakers can be obtained, should correspond with the Council on Health and Public Instruction of the American Medical Association, 535 Dearborn Avenue, Chicago. The Council has a list of speakers who are ready to make interesting addresses on various subjects pertaining to medical science, especially hygiene, sanitation and popular medicine. A county society has itself to blame if it fails to offer cooperation in a chautauqua, for this method of public education is one of the easiest and most effective possible. In this connection see two current comments in The Journal, Sept. 7, 1912, p. 810.

As to jokes in which the physician receives the laugh, we advise our correspondent not to be too sensitive. We would not excuse for a moment the joke that is bitter, vicious or low, but a kindly, wholesome joke should be enjoyed by every one. Members of other professions, even the clergy, are not exempt from being made the objects of jokes. Every race, trade and profession has its peculiarities and foibles, and the humorists do not overlook them. When the victim of a harmless joke resents it, both the humorist and the interested auditors are delighted; to join in a joke turns the edge away and promotes good feeling and sympathy.

CAPITALS IN THE NAME "CHRISTIAN SCIENCE" AND OTHERS

To the Editor:—Please give me the reason for capitals in Christian Science and not homeopathy. N. N. N. N.

Answer.—Various reasons may influence different persons in treating a given name as a proper noun. Apart from the fact that "Christian," being a proper adjective, is almost invariably capitalized, we capitalize "Christian Science" and lower-casing "homeopathy" for the same reason that we capitalize "Warner's Safe Cure" while lower-casing "tincture of iodin," "potassium iodid" [illegible] for the [illegible] to wit, that each capitalized [illegible] ing an assertion for which we do not care to be responsible. If we were to write "Warner's safe cure," we should imply that it *is* safe and a cure. The use of an authenticated proper name, capitalized as such, involves no responsibility for its appropriateness. Frank Green may be a confidence man and Lily White a pronounced brunette. There can be no impropriety in calling either by the name bestowed by parents and godparents, but there might be some risk in dropping the capitals and asserting or implying that the one is frank and green and the other lily white. Capitals are marks of distinction, whether they constitute badges of honor, commercial labels or convicts' tags depends entirely on circumstances.

THE NEW BUTTON OF THE ASSOCIATION

To the Editor:—Please explain the new button of the American Medical Association. Some of us have a hazy idea of its meaning and a good many do not understand it at all.

THOMAS CRUICKSHANK, Vermillion, S. D.

ANSWER.—In reply to this and other inquiries, we quote from the report made to the House of Delegates by the committee appointed to devise a suitable emblem for the Association: "Your committee believes that it (the emblem) should convey a definite meaning both in colors and design. It was easy to determine that scarlet and gold had been the medical colors since ancient times. . . . It was also determined by your committee that the true ancestral symbol of the healing art is the knotty rod and serpent of Æsculapius." An article by Dr. Samuel P. Gerhard, Philadelphia, "The Appropriate Insignia for the American Medical Association" (THE JOURNAL A. M. A., April 24, 1909, p. 1325) elaborates on the appropriateness of the use of the knotty rod and serpent.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POSTGRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

PROGRESSIVISM AND PUBLIC HEALTH

One of the most encouraging features of the present public health propaganda is the growing recognition of the economic and sociologic value of public health. Some of the leading newspapers of the country have recognized this fact and have included a demand for better health conditions as one of the planks of the constructive platform which they are advocating. Two recent editorials in the Chicago *Tribune*, one of the most prominent of the progressive papers, emphasize the marked change in public opinion which has occurred in the past few years. In its issue of September 3, the *Tribune* under the heading "The Greatest of Our Needs," says:

> No nation can take and sustain a prominent place in the modern world that fails to develop and utilize the powers and ability latent in all classes of its people. The people whose wise men evolved that principle have accomplished perhaps the greatest feat of nation building and wealth creating in history.
>
> This people is not the Japanese, although they have done wonders in a quarter century. They are the Germans.
>
> "Germany is the great scientific nation. That is, it is the nation which has most deliberately and persistently applied organized knowledge and systematic thought to the problem of making a community of efficient men, to minimizing the natural disadvantages of the land they occupy and making the most of all available advantages to building up the national wealth and improving all the means by which modern peoples compete with their rivals in the world.
>
> "Germany is a triumph of will directed by intelligence.
>
> "And efficient education is the corner stone of her greatness."

The *Tribune* then discusses the value of recent scientific advances in changing our views on practical education and the influence of proper educational methods on industrial and social condition.

On the following day, September 4, under the title "Real Progressivism," the *Tribune* continues the discussion of these principles, applying them to health instead of to education. The editorial says:

> "This country has grown rich because of the masterly people who inhabit it and the great resources with which nature has endowed it. We have been so all powerful that it never occurs to us to take stock.
>
> "Year by year we have skimmed the cream and thrown away the milk. We have assumed that this was good policy because—have we not prospered? Tired, overused land is worth more to-day than fresh land was worth forty years ago, therefore, must not our land policy be right?
>
> "But of late the more thoughtful and far seeing Americans have realized the fallacy of these easy theories and the accumulating evil of our wasteful practice. It is an interesting paradox that one of the consequences of our success is to warn us that we must no longer pursue success in the old way. That is, our great wealth and enlarged facilities for wealth production have driven us into competition with the world, and competition is teaching us. So long as we remained provincial we learned little from outside. Now we have become aware that other people are wise, are strong, are able, are energetic as well as we—and we are learning that some are wiser and stronger in some respects than we.
>
> "The chief of these lessons is that the most formidable of our rivals exert especial pains to protect and conserve as their greatest national resource—their people.
>
> "They have reduced their typhoid death rates until they are less than one third the rates prevailing with us.
>
> "They have cut their consumption rates to about half what they once were, as compared with a reduction that nowhere in this country exceeds 25 per cent.
>
> "Germany inaugurated a great movement for the protection of the vital resources of its working people more than a quarter of a century ago. England has been developing a similar policy during the last ten years. Meanwhile we have rather relied on fresh, strong, young country men and women coming into the cities, and on the cream of the virility and strength of Europe—our stream of sturdy immigrants—to keep our death rates down and our standards of human efficiency up.
>
> "Men of great wealth who have profited by illegal combinations and unfair business methods sometimes salve their consciences by contributing money freely, magnificently, to great philanthropic enterprises. As these sums are oftentimes drawn from unwarranted and unfair profits, the burden of disease and illness, poverty and inefficiency falls indirectly, when it does not fall directly, on the shoulders of the people.
>
> This is a vicious circle. It should be replaced by a more logical process. The collective intelligence of the nation, of the great American community, should deal directly with the conservation of the people's health and strength. We need to get rid of a lot of dead lumber in our public discussions and get hold of some practical truths, as that—
>
> Malaria decreases the value of land at least $10 an acre.
>
> Hookworm, by producing inefficiency, influences the price of cotton goods more than the tariff.
>
> 'Pellagra is a problem as important as currency reform.
>
> Consumption is of more consequence than the coinage of silver.
>
> Pauperism is a practical problem that deserves the most persistent and thorough study.
>
> 'Social justice is a necessity if our republic is to endure.
>
> The *Tribune* believes that the kind of help given the farmer for his stock should be given him for his family, that communities should be helped to banish consumption and typhoid fever, that mothers should be protected during child bearing, that the slaughter of the innocents should cease, as far as it is possible to make it cease, that children should be given a chance to grow up in strength, that men should be enabled to labor at high efficiency, that prevention should replace cure, that pauperizing of men by charity should give place to a scientifically developed scheme for the care of those who need to be cared for along broad economic lines.
>
> For the development of such broad activities proper machinery will be devised as a matter of course. The particular type of machine—whether departments of health, commissions, health services, health bureaus or national insurance departments—is a matter of detail."

The *Tribune* has well expressed the views of an increasingly large number of people. As is usual in political and social development, the radical views of the progressive minority to-day will be the accepted views of the majority of tomorrow. Human betterment in all its phases is the most important problem for a civilized nation. In this problem there is no more important factor than the conservation of life and health through the suppression of preventable disease.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona Phoenix October 7 8 Sec Dr John Wix Thomas.

Colorado Denver October 1 Sec Dr David A. Strickler 612 Empire Building

Georgia Regular Atlanta October 8 10 Sec. Dr C T Nolan Marietta Homeopathic Atlanta October 3 Sec. Dr R E Hinman 106½ Whitehall St Atlanta

Idaho Idaho Falls October 1 2 Sec Dr O J Allen Bellevue

Illinois Coliseum Annex Chicago September 24 26 Sec. Dr James A Egan Springfield.

Kansas National Hotel Topeka October 8 Sec Dr H A Dykes Lebanon

Michigan Capitol Bldg Lansing October 8 10 Sec. Dr B D Harison 504 Washington Arcade Detroit

Minnesota State University Minneapolis October 1 Sec Dr Thomas S McDavitt Lowry Bldg St Paul

Mississippi Capitol Jackson October 22 23 Sec. Dr W W Smithson Coates House

Missouri Kansas City, October 1 3 Sec Dr Frank B Hiller Jefferson City

Montana The Capitol Helena October 1 1912 Sec. Dr William C Riddell

New Jersey Capitol Bldg Trenton October 15 16 Sec Dr H G Norton

New Mexico Santa Fe October 14 Sec. Dr W E Kaser East Las Vegas

New York September 17 20 Chief of Examinations Division Mr Harlan H Horner Department of Education Albany

Oklahoma Muskogee October 7 9 Sec Dr John W Duke Guthrie

Rhode Island State House Providence October 3 Sec Dr Gardner T Swarts

Utah Salt Lake City October 7 8 Sec Dr G F Harding 310 Templeton Building

Wyoming Riverton October 9 11 Sec Dr A. B Tonkin

Reciprocal Relations Restored

Reciprocal relations between New York and New Jersey, providing for the endorsement of medical licenses, were reestablished by the Board of Regents of New York at a meeting held August 26, 1912 Such relations had previously been arranged but were cancelled in 1910 because of a decision by the attorney general of New Jersey which revealed a weakness in the New Jersey practice act According to that decision the medical student could not be required by the examining board to have completed, nor in fact to have had, any high school work prior to beginning the study of medicine, but was privileged to pursue both high school and medical courses at the same time if he so desired. In other words according to this decision, the medical student's preliminary ' education did not need to be preliminary Recent amendments, according to report, have corrected this defect in the law and, as a result, reciprocal relations between the two states have been restored

Ohio April and July Reciprocity Reports

Dr George H Matson, secretary of the Ohio State Medical Board, reports that at the meetings held by that Board April 2 and July 9, 1912, 27 candidates were licensed through reciprocity The following colleges were represented

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
Northwestern University Medical School	(1895) (1898) (1910)	Wisconsin Minnesota Illinois
College of Physicians and Surgeons Chicago	(1905)	Wisconsin
Rush Medical College	(1901)	Illinois
Indiana University School of Medicine	(1909)	Indiana
Kentucky School of Medicine	(1898)	Indiana
Detroit College of Medicine	(1897)	Michigan
University of Michigan Homeopathic College	(1910)	Michigan
Michigan College of Medicine and Surgery	(1897)	Michigan
University of Michigan Dept. of Med. and Surg	(1910) (1911)	Michigan
Barnes Medical College	(1897)	Missouri
Homeopathic Medical College of Missouri	(1877)	Missouri
Washington University St Louis	(1903)	Missouri
Marion Sims College of Medicine	(1897)	Missouri
Long Island College Hospital	(1901)	New York
University and Bellevue Hospital Medical College	(1899) (1907)	Michigan New York
University of Buffalo	(1899) (1900)	New York
Medical College of Ohio	(1893)	Kentucky
Cincinnati College of Medicine and Surgery	(1903)	Kentucky
Western Reserve University	(1891)	Kentucky
Hahnemann Medical College and Hospital Philadelphia	(1880) (1909)	Maryland Indiana
Jefferson Medical College	(1881)	W Virginia

Arizona July Report

Dr John Wix Thomas, secretary of the State Board of Medical Examiners for Arizona reports the written examination held at Phoenix, July 1 2, 1912 The number of subjects examined in was 9 total number of questions asked 90 percentage required to pass 75 and not less than 60 in any one branch The total number of candidates examined was 9, of whom 8 passed and 1 failed The following colleges were represented

PASSED

College	Year Grad	Per Cent
College of Physicians and Surgeons Los Angeles	(1912)	84 1
Chicago College of Medicine and Surgery	(1912)	85 3
Rush Medical College	(1912)	8[illegible] 7
Louisville Medical College	(1906)	78 6
Homeopathic Medical College of Missouri	(1908)	81 1
Washington University St Louis	(1908)	80 8
Columbia University College of Phys and Surgs	(1898)	80 [illegible]
University of Virginia	(1905)	78 6

FAILED

College	Year Grad	Per Cent
Tennessee Medical College	(1907)	65

The following questions were asked

ANATOMY

1 What arteries supply the heart with blood and where do they originate 2 Describe the thoracic duct 3 Describe the thyroid gland including blood and nerve supply 4 Where is the fissure of Sylvius and what artery does it contain 5 What muscles assist in (a) mastication (b) deglutition 6 Describe the diaphragm its principal openings and nerve supply 7 Name the bones of the head 8 Name the ligaments of the hip joint 9 State (a) the nerve supply of the rectum and (b) the blood supply of the rectum 10 Describe the inguinal canal

PATHOLOGY

1 Define hyperemia and give varieties and causes 2 Define transudate and exudate with examples of both 3 Define (a) embolism (b) thrombosis and give examples 4 Define and give symptoms of inflammation 5 Describe the pathologic findings in typhoid fever

BACTERIOLOGY

1 Describe the technic of staining for tubercle bacilli 2 Define immunity and classify same 3 Define (a) phagocytosis (b) antitoxins (c) vaccine 4 Describe the gonococcus and give method of staining 5 Give Koch's rules or dicta in regard to the bacterial cause of diseases

CHEMISTRY AND TOXICOLOGY

Answer ten only 1 What element occurs most abundantly in Nature and what are three of its more common combinations 2 Atmospheric air is composed of what elements and in what proportion by volume 3 Give definition of acids and formulas of six acids commonly used in medicine 4 Define a salt and explain the difference between normal and basic salts 5 What are hydrocarbons? Mention three 6 Give difference between alcohols and ethers 7 What chemical elements occur in all proteids Name three common proteids 8 What are the common sources of acetic acid? 9 Name the normal constituents of human milk and their approximate proportions 10 Give treatment of arsenic poisoning 11 What is the chemical antidote for phenol (carbolic acid) poisoning? What would you use for a physiologic antidote? 12 What is the best treatment for poisoning by strong mineral acids?

PHYSIOLOGY

Answer five only 1 What part of the nervous system is involved in stammering speech 2 Describe the pneumogastric nerve and its functions. 3 Describe lymph and how it is formed. 4 Classify foods and give a general description of each 5 What is the pulse and what do its varieties signify within physiologic limits? 6 Describe the physiology of menstruation 7 Briefly describe visual accommodations

HYGIENE

Answer five only 1 What means should be taken to prevent spreading of small pox 2 What means should be taken to prevent spreading of diseases in schools? 3 What regimen should be enforced in the sick room of tuberculous patients? 4 Why should we abolish the common drinking-cup? 5 Describe the proper care of foods in stores and markets and why 6 What are the dangers from drinking water from an unprotected watershed? 7 Why are plumbing fixtures ventilated

MATERIA MEDICA

1 Define materia medica and therapeutics 2 Define tincture extract and ointment 3 By what process and from what source is sugar of milk principally obtained 4 State the source of ichthyol and give its uses in medicine 5 Give the Latin title of paregoric name all its constituents and give the amount of the principal drug in 1 ounce of the mixture 6 Give the composition of the official compound cathartic pill 7 Name the alkaloids of nux vomica 8 What is incompatibility in medicine and what are the different kinds of incompatibility Give an example of each 9 Describe four diuretics and give dose of each 10 What class of acids would you use to acidify alkaline urine? Name one and give dose

PRACTICE OF MEDICINE

1 Differentiate between cerebral vomiting and gastric vomiting 2 In what diseases does leukocytosis occur 3 What is the [illegible] cause of prolonged expiration? 4 Describe the mitral regurgitant murmur give the topography of the chest showing where this sound is best heard 5 Mention the causes and describe the treatment of primary lobar pneumonia 6 Define angina pectoris What pathologic condition may cause it? 7 On what symptoms would you base a diagnosis of typhoid fever 8 Give the [illegible] and of the eruption of the exanthemata 9 What is the cause of syphilis 10 Give the symptoms and blood picture of [illegible]

OBSTETRICS

Answer ten only 1 Give the diameters of the fetal head [illegible] 2 Give the diameters of the pelvis in inches 3 Differentiat between normal pregnancy tumors within the abdominal cavity and ectopic gestation 4 What maternal condition would warrant destruction of fetal life? 5 When the action of the uterus is insufficient what measures and remedies may be used to bring about normal contraction? 6 Should you find albumin and tube casts in the urine of a pregnant woman what morbid condition would be indicated and what would be your treatment? 7 Diagnose placenta prævia and give treatment 8. What is the principal cause of ophthalmia neonatorum, and what means should be used to prevent it? How would you treat a case? 9 Give position of the fundus at three five and seven months 10 Name some of the causes and dangers incident to protracted labor 11 Make a diagnosis of syphilis in the new born State something concerning the prognosis 12 Describe how you would conduct normal labor

GYNECOLOGY

1 (a) Define endocervicitis, (b) give the symptoms and (c) treatment 2 What are the indications for curettage? 3 Define (a) dysmenorrhea (b) amenorrhea (c) menorrhagia and (d) metrorrhagia 4 Mention the varieties of uterine displacements 5 (a) Define urethral caruncle (b) give its histology (c) symptoms and (d) treatment 6 Make a diagnosis from the following history (a) A woman aged 26 mother of three children Menstruation stopped two months ago Patient seized with abdominal pain cramp-like in character appearance of uterine hemorrhage rapid pulse anemic increased leukocyte count temperature first subnormal then elevated Physical examination shows breast enlarged, uterus enlarged, os soft and mass in lateral fornix (b) Describe in detail the treatment 7 Discuss the etiology of cancer of the uterus 8 Describe the clinical history of a large ovarian cyst 9 Make a differential diagnosis between interstitial fibroids of the uterus and an ovarian cyst. 10 Describe an operation for amputation of the cervix

SURGERY

1 What is inflammation? How does inflammation extend and how may it terminate? 2 Give the symptoms diagnosis and treatment of phlebitis 3 Name the inflammatory diseases of bone. 4 How would you arrest epistaxis? 5 What symptoms follow division of the radial nerve? 6 Name the varieties of shoulder joint dislocations 7 Name the causes of delayed bone union and give treatment 8 Differentiate dislocation of the head of the femur from fracture of its neck, and give essentials of treatment of each 9 Describe a method of amputation of the last phalanx 10 Describe dermoid cysts In what situations are they most commonly found?

Book Notices

MOTIVE FORCE AND MOTIVATION TRACKS A Research in Will Psychology By L. Boyd Barrett S J Doctor of Philosophy Superior Institute Louvain Cloth Price $2 50 Pp 225 New York Longmans Green & Co 1911

This is a technical laboratory study on formation of character and education of the will The author believes that the essential elements of character are expressed in the choice process For this purpose he instituted 1,100 experiments, by means of which he reached the conclusion that when a choice has to be made between two alternatives the choice is quick and easy in proportion as the values of the alternatives are clearly and definitely known From the moment a person grew doubtful about the position of a substance on the scale of values all regularity and certitude were at an end Motivation was no longer swift and easy Volitional force instead of being economized was wasted Hesitations occurred and the functioning of the will grew more and more arduous and painful Generalizing then he thinks that a person who consistently without hesitation or capricious movements takes the best of the two alternatives with more and more ease and that for intrinsic motives is one who has a well fashioned will a good character This interesting psychologic study cannot fail to stimulate further research in a hitherto but little cultivated field.

SURGICAL OPERATIONS A Hand Book for Students and Practitioners By Prof Friedrich Pels Leusden Chief Surgeon to the University Surgical Clinic Translated by Faxton E Gardner M D Cloth Price $7 Pp 7_6 with 608 Illustrations New York Rebman Company 1912

The work of Pels Leusden comes near to accomplishing the difficult task of successfully teaching operative technic to both students and practitioners. The author is an exponent of German surgery and makes only incidental mention of American surgical procedures The need for conciseness and the selection of only classical procedures justify this omission The custom of Americans translating German and French works of inserting references to American works along similar lines is desirable for American readers provided it does not deviate too much or overshadow the original. The translator has succeeded in putting the text into good English He might in some instances, have been a little less faithful to the long German sentences of the original text In scientific works, the facts weigh more than the language, and such works should be freely translated, without injury, of course, to the original statement A valuable feature is the mention of standard methods of postoperative technic and indications for surgical interference in the most common postoperative complications It is to be regretted that in most books on surgery for students these things are omitted The illustrations, while correct and faithful to the description contained in the text, lack the art which characterizes the work of the Johns Hopkins school being in most instances either diagrams or semidiagrammatic The chapter on anesthesia, illustrated by very complicated apparatus for narcosis, gives the impression that the Germans should learn the simple method of ether anesthesia which is responsible for the low primary mortality from anesthesia in the United States The table of contents constitutes a useful regional classification and the index is detailed and complete

TECHNIK DER KLINISCHEN BLUTUNTERSUCHUNG FÜR STUDIERENDE UND AERZTE. Von Dr A Pappenheim Berlin Paper Price 2 marks. Pp 55 Berlin Julius Springer 1911

This little book presents only the essential and clinically valuable methods of blood examination The three cardinal features of hematology, namely, staining, counting of cells and estimation of hemoglobin are especially emphasized, while the chemical and physical methods are ignored The methods selected are those proved reliable by Pappenheim in his extensive work and are, therefore, of more than passing interest Thus, his method of staining is a modification of the combined May Grünwald and Giemsa stain, which gives very panoptic results Sahli's method of estimating hemoglobin is preferred

PRAKTISCHE NEUROLOGIE FÜR ÄRZTE. Von Prof Dr M Lewandowsky Paper Price 6 80 marks Pp 300 with 20 illustrations Berlin Julius Springer 1912

This is a small text book for the general practitioner, in which a large portion is devoted to general methods of examination and a discussion of the leading facts in practical neurology The publication of short text books for practitioners is a new feature in German medical literature, which abounds with monographs and large treatises on nervous topics while our own literature is blessed with a superabundance of the former and a scarcity of the latter kind of writing The book is thoroughly up to date, containing also brief accounts of important advances in the treatment of nervous disorders

ELEMENTS OF HYDROTHERAPY FOR NURSES By George Knapp Abbott M D Dean of the Faculty and Professor of Hydrotherapy and Practice of Medicine in the College of Medical Evangelists Loma Linda Cal Cloth. Price $1 50 Pp 273 Washington Review and Herald Publishing Association 1911

In the preface the author states that he has endeavored "to cover the subject in only an elementary way" This is exactly what he has done, the book is elementary In an elementary way it takes up the physical properties of water, the effects on the body after hot and cold applications the action of the skin in hydrotherapy and the effect of hydrotherapy on the circulation and muscles The treatment of various disorders and diseases is discussed and then the technic of the various methods used in this form of therapy

DIE ENTSTEHUNG DER KURZSICHTIGKEIT Von Dr Georg Levinsohn Paper Price [illegible] 50 marks Pp. 88 with 3 illustrations Berlin S Karger 1912.

In this essay the author contends that myopia is caused by the overflexion of the head on the trunk in the attempt to use the eyes for near work He explains his theory on the ground of gravity pulling the eyeball away from the optic nerve thereby lengthening the axis and causing short sightedness In consonance with his theory he proposes that school benches be so constructed that unnecessary bending of head and trunk be obviated Further pupils should be constantly admonished to maintain an upright posture while reading or writing

Society Proceedings

COMING MEETINGS

Amer Assn for Study etc. of Infant Mortality Cleveland Oct 2 5
Amer Assn of Obstetricians and Gynecologists Toledo Sept 17 19
American Association of Railway Surgeons Chicago Oct 16-18
American Public Health Association Washington D C Sept. 18-20
Assn of Military Surgeons of the United States Baltimore Oct 1-4
Colorado State Medical Society Pueblo Sept. 24 26
Conf State Bds of Health of N Am Washington D C Sept 20 21
Delaware State Medical Society Wilmington Oct 8
Indiana State Medical Association Indianapolis Sept. 26-27
Internat. Congress on Hygiene etc. Washington D C Sept 23 28
Kentucky State Medical Association Louisville, Oct 29 31
Medical Association of the Southwest Hot Springs Ark. Oct 8 10
Mississippi Valley Medical Association, Chicago Oct 22 24
National Association for Study of Pellagra, Columbus S. C., Oct 3-4
Nevada State Medical Association Reno Oct. 8-10
Pennsylvania State Medical Society Scranton Sept 23 26
Utah State Medical Association Ogden Sept. 24 25
Vermont State Medical Society Montpelier Oct. 10 11
Virginia Medical Society Norfolk Oct 22 25
Wyoming State Medical Society Sheridan Sept 17

Medicolegal

Damages Recoverable for Negligent Failure to Deliver Telegram From Physician

(Alexander vs Western Union Telegraph Co (N C) 74 S E R 449)

The Supreme Court of North Carolina says that the plaintiff became ill with an attack of appendicitis Her attending physician was of opinion that an operation was immediately necessary, but was unwilling to undertake it with the facilities at hand and undertook for her to ascertain by telegraph if a physician at a city hospital would operate, the patient not being able to pay until later A favorable reply was sent, but never delivered, and arrangements were thereafter made for an operation at another place In affirming a judgment for damages in the plaintiff's favor, against the telegraph company, for apparently $1 000 for alleged mental anguish in not hearing from the first physician inquired of by telegraph, the court says that the right of an addressee or a beneficiary whose interest has been made known to the company to recover for a negligent failure to deliver a message of this character is fully established in North Carolina and that the plaintiff's cause was brought within the principle of the decisions of that state where substantial damages by reason of mental anguish have been allowed

Expert and Non Expert Opinions as to Diseases—Hypothetical Questions

(Shawnee Gas & Electric Co vs Hunt (Okla) 122 Pac R 673)

The Supreme Court of Oklahoma holds that a graduate nurse who has never nursed a case of epilepsy is not competent to testify as to whether certain symptoms indicate epilepsy, it not appearing from the evidence that nurses, as part of their training as such, are taught to diagnose diseases It says that the court could not presume that a nurse must learn the diagnosis of diseases as part of her training as such It cannot be denied that a nurse is competent to testify that a person has had a "fit," but under the circumstances stated she is not competent to testify as to merely epileptic conditions, as shown by certain symptoms Any persons could testify as to whether or not another had had a "fit," but it might require some considerable study of diseases to be able to testify whether a "fit" was of epileptic character It is believed that it is safer to confine expert testimony, in which the witness is permitted to give an opinion, to those persons who have had special training in the diagnosis and treatment of diseases Of course a person without professional skill, who has observed another whose condition is under investigation, may be permitted to testify as to whether or not his condition is normal or abnormal, as for instance whether he is sane or insane but it is not safe to permit any one except physicians to make distinctions as to what particular diseases or ailment the abnormality points to as for instance with what particular form of insanity a patient is affected.

It was contended that a hypothetical question was improper because of an explanation or direction given to the witness at the beginning of the question but no authorities were cited in support of the contention and it does not seem to be supported by reason It was a mere statement to the witness as to what the examiner intended to state in the question and added nothing to the facts as stated and did not appear to require any particular answer Where experts are called as witnesses, it is usual and not improper to inform them beforehand as to the nature of the question they will be called on to answer and there is no reason why a statement of this sort to a witness on the stand should be more improper than it would be in the lawyer's office before the trial began Again it is almost impossible to state a question of more than 500 words without making it complicated. It is very doubtful if any juror is ever able to follow a hypothetical question sufficiently to remember and consider it in detail in the making of a verdict. It is proper too, to ask a witness who testifies as an expert what causes in his opinion, produced certain results Such a question is not objectionable as calling for a conclusion of the witness, nor as invading the province of the jury The jury is not compelled to follow his opinion It may not believe his opinion the correct one

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

Yale Medical Journal, New Haven, Conn.

May XVIII No 9 pp 357 445

1 Connecticut a Doctor of Consumptives. S J Maher New Haven
2 Medical Expert Testimony H G Anderson Waterbury Conn
3 *Experiences with Salvarsan in Syphilis J M Flint and W F Cunningham New Haven

3 **Salvarsan in Syphilis.**—Ten syphilitics who were otherwise free from disease were given a single injection of salvarsan In the series there were no primary lesions Of the secondary lesions, several types of skin rash and tonsillar and pharyngeal ulcers were present and of the tertiary cases, there were bone lesions in the form of gumma and osteomyelitis of the humerus, ulcers of the pharynx, leg, rupia and an old squamous syphilid of the palms The effect of the injections were most marked on the pharyngeal and tonsillar ulcers, which cleared up in from five to seven days The skin lesions healed in from ten days to two weeks although there was often a persistent pigmentation such as follows the healing of any chronic lesion for a week or two longer The rupia and squamous syphilids disappeared in from two to three weeks while the large syphilitic ulcers began to show evidences of repair in a few days but the time consumed in the healing process naturally depended on the extent of the ulceration

Of the bone lesions the gumma showed the effect of salvarsan earliest the pain disappearing in a few days and a distinct decrease in size was observed in a week The clavicle appeared practically normal in about six weeks In a case of syphilitic osteomyelitis there was a distinct improvement as far as the pain was concerned in a week, and in three weeks a radiograph showed an absorption of the periosteal deposits and a clearing up of the shotted appearance of the shaft

The only case in the series which showed resistance to the drug was one of congenital syphilis with interstitial syphilitic keratitis It is doubtful in this instance whether the improvement was any more rapid than with the ordinary treatment of atropin and mercury

The local reaction to the subcutaneous injections in two cases consisted in pain and tumefaction The local reaction in the intravenous injections was *nil* in all cases save one, in which a small amount of the drug escaped in the tissues about the vein In this instance, there was pain and swelling which lasted for several days The systemic reaction has varied in the intravenous series from none at all to a transitory increase in temperature and pulse rate, accompanied in some cases by nausea and vomiting and a few diarrheic stools In no instance has the reaction been severe enough to cause any alarm and in most the patients have noticed nothing out of the ordinary in their condition

In each case, with three exceptions the red and white corpuscles were counted, the hemoglobin estimated and a differential count made The majority of cases showed a slight increase in the number of reds and an average increase in about 5 per cent of hemoglobin in the interval of a week that elapsed between the two estimations The number of whites varied somewhat with the condition and were naturally higher in cases in which ulceration was present with consequent absorption but neither a constant increase nor decrease in the number of leukocytes was observed after the injection The differential counts showed nothing of interest, the relative percentages being apparently unaffected by the administration of the drug

In no case has the Wassermann reaction been permanently negative In two cases there was evidence of a transitory nephritis The conclusions which the authors draw from the observation of this series of cases seems to be in accord with the experience of others namely, that salvarsan in most instances is a symptomatic specific Its control of the lesions of syphilis is remarkably rapid and complete, but permanence of the cure as indicated by the Wassermann reaction cannot be expected from a single dose or even a number of doses

Delaware State Medical Journal, Wilmington

August III No 9 pp 1 26

4 Conservative Surgery of Pelvic Organs H J Stubbs Wilmington
5 Relation of Physician to Pharmacist W H Kraemer Wilmington

Vermont Medical Monthly, Burlington

August 15 XVIII No 8 pp 183 208

6 Neuralgia S W Paige St Albans
7 Criminality Physician as Factor in Prevention Crime on Increase B Joseph Burlington

Washington Medical Annals, Washington, D C

September XI No 4 pp 189 216

8 Value of Sophol in Prevention of Ophthalmia Neonatorum J I Moran Washington D C
9 *Oily Injections of Salvarsan H H Hazen Washington D C
10 Study of Mental Deterioration D I Hickling Washington D C

9 **Oily Injections of Salvarsan**—In the sixteen months that Hazen has been using the oily injections they have been found to be superior to the other intramuscular ones in two ways first ease of usage and second, in the freedom from pain Hazen's formula is as follows Gum camphor, half dram monomethylcatechol (guaiacol) half dram paraffin oil enough to make one ounce Just enough of this oil is used to make a fine smooth emulsion about 5 c.c are usually required The technic of preparation and injection is simple All that is needed in addition to the oil and the salvarsan is a suitable syringe and a small mortar and pestle A 5 c.c syringe may be used but one in which the end of the plunger is cut off square and is not round as in the latter case some of the emulsion may work up between the plunger and barrel of the syringe and jam The portal of exit of the syringe should be large and a needle of from seventeen to twenty gauge used Inasmuch as the syringe must be absolutely dry, it should be first lubricated with castor oil and then sterilized by dry heat or it may be boiled and then cleaned with alcohol and ether the former method is much the better The very slightest quantity of moisture may cause a hopeless gumming The mortar and pestle may be boiled and allowed to dry The tube of salvarsan is broken into the mortar and the oil added drop by drop constantly grinding until a perfect emulsion is secured It is then drawn into the syringe and the injection made in the usual way

[illegible] tion of Dr Fowler about 0.5 c of air [illegible] so as to prevent the oil from escaping into the subcutaneous tissues The injections may be made into either the gluteal or lumbar muscles To date Hazen has forty two cases with fifty three injections, all injections being given in the buttocks He says that a small injection of 0 3 gram gives even less trouble than a full injection, so it is wise to give two half doses at one sitting rather than a full dose His results have been about the same as with the other types of intramuscular injections, most of the secondary skin manifestations, and all the mucous patches, condylomata, and throat ulcerations cleared up speedily, while some of the tertiary lesions did very well and some were uninfluenced

Old Dominion Journal of Medicine and Surgery, Richmond, Va

August XVI No 2 pp 41 97

11 Uterine Hemorrhage a Symptom Frequently Seen in Pellagra of Women C H Peete Warrenton N C
12 Amebic Dysentery R D McMillan Red Springs, N C
13 Chronic Nephritis a Neglected Study J D Willis Roanoke Va
14 Fellows of Alumni of Medical College of Virginia J M Burke Petersburg W Va
15 Medicine in Lay Literature B M Randolph, Washington D C

Bulletin of Manila Medical Society

July IV, No 7, pp 137 145

16 Epidemic of Bacillary Dysentery in Baguio M A Barber and L Gomez
17 Dysentery at Camp John Hay Baguio P M Ashburn and C B Vedder U S A.
18 *Effect of Methylene Blue on Intestinal Parasites in Man C H Schultz Seattle Wash.

18 **Effect of Methylene Blue on Intestinal Parasites in Man**—A personal experience and laboratory observation showed Schultz that methylene blue is evidently destructive to certain low forms of animal life, but not to all The larval forms of the pinworms in the upper intestines are killed by the drug but not the mature worms in the colon and rectum. For this reason we must exhibit the drug during the time that the pests are in the larval stage Cleanliness will limit reinfection Treatment with methylene blue pills extending over five days, eighteen to twenty four 1 grain pills daily (for a full grown, otherwise healthy man), the entire treatment to be taken three times, ten days apart, has destroyed these pests in Schultz's alimentary canal on three different occasions A slight headache and pronounced tinnitus aurium, similar to the effect of large doses of quinin became noticeable on the second day On the last day a marked laxative effect produced liberal evacuation of the bowel Urine and feces remained dark blue Sedimentation and microscopic examination of the urine failed to show anything but a few cuboidal renal cells, some cells from the epithelium of the bladder and numerous calcium oxalate crystals The feces were stained dark blue, even the mucus appeared blue Careful search failed to show oxyuris in the feces, or ova or larva from the vicinity of the anus After three months no parasites have reappeared.

Kentucky Medical Journal, Bowling Green

August 15 X No 16 pp 635 666

19 Fractures of Skull J G Sherrill Louisville
20 La Grippe S S Prather Louisville
21 Raynaud's Disease J H Simpson Louisville
22 Gonorrheal Rheumatism J A O Brennan Louisville
23 Acute Articular Rheumatism Treated with Phylacogen F B Richey Louisville
24 Tuberculosis of Bladder H Bronner Louisville
25 Disseminated Sclerosis F C Askenstedt Louisville
26 Hemophilia Report of Case H A Davidson Louisville
27 Severe Chorea in Child Under Four Years of Age Report of Case with Exhibition of Patient D Y Keith Louisville
28 Delirium Tremens from Paraldehyde Report of Case M Board Louisville
29 Cholesteatomata of Ear W T Bruner Louisville
30 Operation for Traumatic Epilepsy C G Forsee Louisville
31 Appendicitis M Casper Louisville
32 Acute Gastro-Enteric Infection W W Morton Catlettsburg

Therapeutic Gazette, Detroit

August 15 [illegible] No 8 pp 531 608

33 Differential Diagnosis Between Brain Abscess and Sinus Thrombosis Treatment of These Conditions F B Dench New York.
34 Three Step Operation in Tumors of Sigmoid and Colon. J P Tuttle New York
35 Ointment of Scarlet Red in Treatment of Eye Diseases W O Nance Chicago
36 *Effect of Tuberculin (Bouillon Filtrate) on Pulse in Pulmonary Tuberculosis. R T Pettit Ottawa Ill

36 **Effect of Tuberculin on Pulse in Pulmonary Tuberculosis.**—Pettit claims that in cases with a low grade temperature but persistently high pulse, 100 to 125, tuberculin (bouillon filtrate) is of value in restoring the pulse temperature balance. The explanation of this action may be that a toxin neutralization follows the injection of the soluble antigen

Pennsylvania Medical Journal, Athens

August XV No 11 pp 843 924

37 Economic Relations of Social Disease R N Willson Philadelphia
38 Race Suicide D C Guthrie Philadelphia
39 The Human Body a Chemically Regulated Organism R F Lee Meadville
40 Ocular Manifestations of General Disease N J Weill Pittsburgh
41 Plea for Early (Preperforative) Diagnosis of Extrauterine Pregnancy P G Skillern
42 Ectopic Gestation S D Molyneux Sayre.
43 *Ectopic Gestation with Report of Case at Full Term in Which Fetus was Carried in Abdomen for Thirty Five Years F N Yeager Hamilton
44 Treatment of Internal Hemorrhoids by Operation of Excision H D Beyea Philadelphia

43 Abstracted in The Journal, Aug 10 p 443

Boston Medical and Surgical Journal

August 22, CLXVII, No 8 pp 239 270

45 Blood Transfusion Indications Methods and Results F Vincent Boston
46 Case of Intrarectal Rupture of Suppurating Sinus from Hip Joint Disease R W Jackson Fall River Mass
47 Doctor Who Volunteers for Military Service in Time of War C G Foster Cambridge Mass.
48 *Thirty Nine Cases as Regards Intestinal Length and Nutrition L F Swaim Cambridge Mass.
49 *Private Obstetrical Record J R Tobbert Boston*
50 Progress in Obstetrics R L De Normandie Boston

August 29 CLXVII No 9 pp 271 310

51 *Acquired Hallux Valgus Late Results from Operative and *Non Operative Treatment C R Metcalf Concord N H*
52 Neurology of Child Mortality and Proportion of Backward Children in Cases of Congenital Syphilis Subsequent to Hospital Treatment W P Lucas Boston
53 Progress in Treatment of Neuroses E W Taylor Boston
54 *Tuberculosis in Aged and Diagnostic Value of Increased Whisper in Interscapular Space H F Stoll Hartford Conn

48 **Intestinal Length and Nutrition**—Ten dissecting room cadavers and twenty nine bodies seen at a necropsy were carefully examined by Swaim as to the length of the intestines He found ptosis present in nine cases The size of the stomach varied enormously and the tubular stretched stomach was present in most of the cases of ptosis—six out of nine—*and the lesser curvature can be greatly stretched down, this* series shows The small intestines vary greatly in length, 10 feet 6 inches to 25 feet 10 inches, averaging 19 feet 3 inches *the length having only slight effect on the nutrition* with a tendency to more fat the longer the intestine and vice versa

The large intestines vary also, averaging 5 feet 3 inches, *extremes 3 feet 8 inches to 8 feet 5 inches* When the stomach is low the large intestine is apt to be longer and the cecum large and pendulous, the greatest length being in the transverse *colon and sigmoid The total average length of the* entire intestines is 24 feet 6 inches A rather significant fact is that not only the hollow viscera are displaced but even more often the solid, such as the liver, which was below the costal border in twenty cases

51 **Acquired Hallux Valgus**—Metcalf summarizes his paper as *follows Hallux valgus refers to an outward displacement* of the big toe—largely from mechanical causes—with inward displacement of the first metatarsal bone and hypertrophy and erosion of its head *Bunions and hammer toes often accompany* The longitudinal arch may drop the anterior arch is nearly sure to do so Oftentimes symptoms are due primarily to these defects By *non operative treatment*, therefore, an effort has been made to hold the feet in approximately normal position, in non aggravated cases this may be done by wearing *proper shoes and plates* Other forms of treatment have proved of doubtful merit

Advanced cases demand operation Fifteen operations many of them closely allied have been devised The operations fathered by Wilson and by Barker have not met with success Better results have followed employment of the methods of Porter Hunter and Mayo remembering always that the two latter may subsequently require plates. Other operations have not been tried so that the value of tendon transplantation removal of the sesamoids and like details cannot be fairly expounded Syms' dictum is worth noting Employ different procedures for different deformities Always operate on the deformity not on the bursa Finally the most acceptable incision the question of drainage or splinting or shoes and other details of after treatment should be carefully considered for the individual case

54 **Tuberculosis in Aged.**—Stoll states his belief that pulmonary tuberculosis is not an uncommon disease in persons past 60 years of age It is more prevalent than the mortality suggests as an acute pneumonia is often the ultimate cause of death In persons in the latter decade of life the disease is chiefly characterized by its extreme chronicity and by periods of relatively good health Many people contract tuberculosis each year from the intimate association with some elderly member of the household who has had a stomach cough or catarrh for as long as he can remember The examination of the sputum of elderly people for tubercle bacilli is a much neglected procedure The recognition of the pulmonary lesion is often difficult as the typical physical signs are frequently masked by some other condition notably asthma or emphysema In these cases the key to the diagnosis will often be found in the interscapular space The detection of bronchial gland enlargement in adults speaks for tuberculosis rather than chronic bronchitis or emphysema

American Journal of Orthopedic Surgery, Philadelphia

August X No 1 pp 1 169

55 Treatment of Structural Scoliosis A H Freiberg Cincinnati
56 Action of Extrinsic and Intrinsic Muscles of Foot from Anatomic and Mechanical Standpoint L T Brown Boston
57 Structure and Mechanism of Human Joints in Health Disease and Injuries C C Davis Philadelphia
58 Roentgen Ray Study of Gastro Intestinal Findings in Multiple Arthritis G R Elliott New York
59 Some Considerations on Pathology and Treatment of Toxic Arthritis P W Nathan New York
60 Abdomen an Important Factor in Chronic Joint Affections F E Peckham Providence R I
61 Static Joint Diseases Their Etiology and Relation to Arthritis Deformans C Preiser Hamburg
62 Apparatus to Be Used in Application of Plaster Jackets and for Photographic Record of Scoliosis N O Reilly St Louis
63 Etiologic Studies in Osteoarthritis L A O Coddu Boston
64 Traction Spreader Device to Prevent Plantar Flexion of Foot N Allison St Louis

Journal of Arkansas Medical Society, Little Rock

August IX No 3 pp 61 90

65 *Tumors of Urinary Bladder L S Judd Rochester Minn
66 *Diagnosis and Treatment of Pruritus I Dyer New Orleans
67 *What the General Practitioner Too Often Overlooks W Breathwit Pine Bluff

65 Abstracted in The Journal, June 29 p 2018

66 **Diagnosis and Treatment of Pruritus**—There are no specifics for itching says Dyer but there are medications in particular diseases which may apply for general use of course individualizing the case in hand Arsenic is the prime treatment for the nervous basis of the disease and its administration is largely corrective of the itching The derivatives of wheat and oats may aid in these types and the tincture of avena sativa (wild oats) is of special usefulness given in conjunction with the arsenic Where there is no neuropathic cause or association the arsenic not only does no good but *it may actually do harm by local over stimulation Strychnin* serves excellently in the vasomotor disturbances with itching Zinc phosphid acts similarly and is of special service in chronic itching diseases Cannabis indica in the fluid extract may be used every hour in five drop doses as soon as the acute itching is controlled the dose may be reduced and the period *of administration lengthened to every three or four hours* Chlorid of calcium is of service in senile pruritus and in all itching where there is any suggestion or evidence of lowered coagulability Freshly prepared chlorid of calcium may be administered in 5 to 15 grain doses well diluted and repeated every three or four hours Antipyrin and salicylate of soda, used in combination serve best in gouty subjects or in uric acid cases. The use of the sodium and potassium citrate at the same time internally aids in the treatment [illegible] colchicum veratrum viride bromids chloral hydrate and chloroform are among the antispasmodics which have good [illegible]

in stopping the paroxysms of itching, but any and all of these may be relegated until the above named drugs have been first essayed The too free use of morphin for itching should be condemned With all cases of pruritus, mild laxatives diuretics mineral waters of alkaline sorts, diet restrictions and limitations by injunction, habits, etc, should be carefully weighed and considered where indicated

The local treatment of pruritus is of considerable importance and needs to be suited to the particular case General baths are of supreme service in the treatment of itching, and these should be taken as hot as can be comfortably borne Such baths may be employed in all diseases or conditions in which itching is general The baths may be plain or may carry such emollients as starch, marshmallow or bran (in bags) or alkalies may be added, such as carbonate of soda (℥ss to ℥i to 30 gallons of water), household ammonia (℥i ℥ii to the 30 gallons) or suphuret of potassium (℥ii, ℥i to the bath) the last named being especially indicated in all parasitic diseases, vegetable or animal Wet dressings may be substituted for the general bath when the itching is so localized as to permit of such The dressings should be kept wet with saturated boracic acid solution, 1 5,000 to 1 10 000 mercuric chlorid solution, 1 per cent phenol solution, 1 5 000 potassium permanganate solution, or 1 or 2 per cent solutions of resorcin in water always Fixed dressings of coal tar made into a felt with superimposed cotton may be applied and left in place for days at a time Even dry cotton may be firmly bound in place when such a dressing can be so fixed that the patient cannot remove it easily

Oily substances may be employed and the old fashioned carron oil may be used, or camphor and chloral hydrate Cocoa butter and cocoanut oil are excellent protective applications when the skin is dry An oily substance of excellent antipruritic value in small areas may be derived by combining phenol menthol camphor and chloral hydrate, and this may be diluted with any of the simple oils Itching of the anal area is frequently relieved by ergot used either in ointment made with the fluid extract or in suppository with the solid extract Intestinal parasites should be excluded or removed Genital pruritis is often helped with weak resorcin solutions The use of the high frequency spark over the sacral plexus is an excellent adjuvant for genital pruritus and a systematic general effleurage will often aid when other remedial agents fail All cases of pruritus should be studied as individual types and the etiology should be determined when possible then the way to cure will be easier

67 Abstracted in THE JOURNAL, June 29, p 2048

Wisconsin Medical Journal, Milwaukee

August XI No 3 pp 71 102

68 Surgery of Stomach W D Haggard Nashville Tenn
69 Pellagra Report of Four Cases Occurring in Milwaukee O H Foerster Milwaukee
70 Gonorrhea in Women Special Reference to Prophylaxis and Sequelae C M Echols Milwaukee
71 Painless Hematuria H L Kretschmer Chicago

70 Abstracted in THE JOURNAL, June 22 p 1969

Medical Record, New York

August 31 LXXXII No 9 pp 365 411

72 Practical Method of Prophylactic Immunization Against Tuberculosis K. Von Ruck Asheville N C
73 Modern Means of Investigating Mental Processes W J M A Maloney New York.
74 Nasal Obstruction as Early Symptom of Cardiorenal Disease W M Barton Washington D C
75 Pathological Conditions Simulating Appendicitis H W Frauenthal New York
76 Treatment of Puerperal Eclampsia J L Coughlin Brooklyn
77 Removal of Adenoids a Preventive Measure After Exposure to Measles J B Greene Asheville N C

72 Published in THE JOURNAL, May 18 p 1501

74 **Nasal Obstruction as Early Symptom of Cardiorenal Disease.**—Nasal obstruction in Barton's opinion should be [illegible] the later incident rather than accidents of [illegible] in this case it preceded any other symptom by several years and was a rather prominent feature [illegible] that the patient had never had any [illegible] of [illegible] Bright's disease except the [illegible] and this sign was late in appearing since he did not feel it until the beginning of the acute onset of his disease

As to the explanation or pathogeny of such a symptom as nasal obstruction regarded in the light of an early manifestation of cardiorenal disease, the most rational theory, he says, would seem to be that it is in some way due to insufficient urinary depuration, in other words, to slight or latent uremia, the so called petite urémie of the French authors On this hypothesis it might be assumed that in certain individuals in whom the erectile tissues of the nose are in a state of hypersusceptibility the accumulated products of metabolic disassimilation may give rise to a sufficient degree of irritation to produce swelling of the mucous membrane and consequent obstruction of the nose, either as a result of edema of the parts or as a result of vasomotor disturbances set up

Barton's patient, a very intelligent man, has always been physically robust He has been troubled with nasal obstruction for over twenty years The difficulty in breathing through the nose was insidious in its onset, and did not follow any acute inflammatory condition At first and for a long time it was not complete and he could breathe better at times than at others, and one nostril was usually worse than the other He had no symptoms of catarrh His work was all indoors and he was not exposed to draughts or cold About fourteen years ago he noted some dyspnea if he mounted stairs rapidly

Seven years ago the obstruction became so complete at times as to cause him great annoyance and he consulted a rhinologist, who proposed an operation to which he readily consented The operation consisted in an excision of hypertrophic tissue from both nostrils Immediately after the excision he was relieved of the symptom of obstruction and remained so for about a year or more, when he noticed it began to return and at the end of two years was as bad as before the operation Barton saw the patient for the first time March 23, 1912 About two weeks previously he had been taken sick with terrific retching and coughing during the night, accompanied by expectoration of large amounts of thin, frothy, mucoid sputum The retching was accompanied by such intense dyspnea that he was forced to sit up in bed to breathe On account of the nasal obstruction he was forced to breathe largely through his mouth He noted that his pulse was accelerated and believes that he had slight fever The attack was accompanied by great diminution of urinary excretion, the color of which was a dark muddy brown He attempted to treat himself, taking at first some dilute sulphuric acid, which seemed to aggravate his condition, following this with some lithium citrate, which appeared to lighten the color of the urine but did not increase the quantity The patient noted concomitantly that his legs, feet and hands were swollen and that there was puffiness of the skin of the trunk and face, particularly the left side of the face, on which he was accustomed to lie He also noted a disagreeable stinging pain over the region of the heart All of the symptoms tending to become continuously aggravated, he decided to obtain some assistance

Examination of the heart showed the apex beat in the sixth interspace to the left of the nipple line The impulse was diffuse There was considerable tremorous epigastric pulsation The imprint of the stethoscope left a marked ring depression There was no audible murmur The first sound at the apex was muffled and faint The second sound was audible at the apex and markedly accentuated at the base, particularly in the pulmonic area Examination of the chest showed moist râles posteriorly and anteriorly Percussion negative The skin was pale and edematous everywhere The left eye was blind from glaucoma and the vision in the right was much diminished from the same disease An iridectomy had been performed on the right eye Blood pressure 10[illegible] Examination of the urine which was scanty, showed albumin present in light amount and casts mostly hyaline or partly granular Specific gravity 1015 color dark, sediment slight

The patient was put to bed on a milk diet and given infusion of digitalis 3ii every four hours Immediately the symptoms ameliorated The urinary excretion increased in quantity to over 6 pints in twenty four hours going down subsequently to 3 or 4 Albumin and casts diminished The *anasarca rapidly disappeared.* The orthopnea vanished, as also the retching, expectoration and precordial pain The precordial distress kept up, however, until nitroglycerin was given, after which it immediately disappeared. The pulse frequency diminished about 10 beats per day per minute until it had come down from 130 to about 80

But the fact which particularly attracted the patient's attention was that twenty four hours after commencing the digitalis the nasal obstruction was relieved and in forty eight hours it had completely disappeared

Bulletin of American Academy of Medicine, Easton, Pa

August, XIII No 4 pp 163 268

78 Real Purpose of a Medical Practice Act A R Craig Chicago
79 Method of Securing State Appropriations for Proper Segregation and Care of Feeble-minded. J S Neff Philadelphia
80 How Far Shall Public School System Care for Feeble-minded? A W Edson New York.
81 Idem J H Van Sickle Springfield Mass.
82 Idem E B McCready Pittsburgh
83 Sterilization and Segregation H H Goddard Vineland N J
84 Child Labor vs Conservation of School Children O R Lovejoy New York.

New York Medical Journal

August 31 XCVI, No 9 pp 409 464

85 Cinematograph as Aid to Medical Education and Research R Matas New Orleans.
86 *Wheat Bran A E Gallant, New York
87 *Blood Pressure in Pulmonary Tuberculosis. F M Pottenger Monrovia Cal
88 Bubonic Plague C S Braddock New York
89 Cutaneous Sporotrichosis G B Foster and W H Thearle Fort Leavenworth Kan
90 *Arthritis Deformans. H M Greene Portland Ore
91 School Lunches I S Wile New York
92 Salvarsan Therapy H H Morton New York
93 Surgical Hemostasis W C Borden Washington D C

86 **Wheat Bran.**—Coarse, raw bran being composed chiefly of indigestible, non absorbable cellulose, Gallant says, takes up a large amount of water, swells and adds very materially to the débris and bulk in the intestine thereby exerting active peristalsis, which rapidly moves the fecal column downward and outward, thereby overcoming fecal stasis, avoiding putrefaction and preventing resorption with its deadly toxemia

When bran is ingested as a part of the daily regimen the daily stool is made up of a soft, well formed, bulky column of feces with a notable absence of its former foul smelling effluvia As time goes by the "liver spotted" skin clears up dandruff and indigestion disappear the anemia rapidly improves the skin surface loses its dryness and becomes soft and of a healthier tint, and in some instances acne vulgaris has disappeared

Of the methods of administering bran there is no end. In Gallant's experience the best results have been obtained by the use of coarse, unground raw bran, stirred in a glassful of cold water and quickly gulped down or mixed with cooked cereal, and eaten with milk and cream Many, however prefer to take it stirred in soup, purée, or bisque broth or gruel Children like it mixed with jelly jam, marmalade honey maple or other syrup, and spread on bread or toast It matters not how taken so long as it is taken and that once or twice daily Bran taken in the form of graham bread graham biscuits, graham pudding, graham soup etc if indulged in daily and in large quantities is without doubt beneficial, and from a nutritional standpoint of value but owing to its fineness in grinding it does not result in such bulky feces and loses much of its value in habitual constipation When taken as raw bran the average patient requires one to two heaping tablespoonfuls daily others do better if that quantity is increased to three or four tablespoonfuls In some instances the laxative effect is at first quite manifest, but will subside in a day or two, or the dose may be reduced In others it may be necessary to continue the usual cascara or phenolphthalein laxative for a few days until the habitual stool is established when the drug must be discontinued Bran taken just before going to bed will induce a slight inclination very soon after rising and should result in an action before the morning bath If taken at breakfast a natural though mild alarm will be felt about noon and this warning should always be promptly obeyed or the good effect will be lost

Among the several hundred patients whom Gallant has taught the bran habit there have been many who suffered with chronic diarrhea alternating diarrhea and constipation mucous colitis enema constipation constipation due to the use of castor oil the saline waters and other drugs whose secondary effect is an astringent one and results in relative constipation For several years it has been his habit while patients are convalescing after operation to feed them a daily quota of bran and teach them the value of this beneficent habit

87 Abstracted in The Journal, Aug 3 p 390

90 **Arthritis Deformans.**—Greene reports the case of a man aged 44 years, who began three years ago to have an arthritis in the right wrist The condition gradually extended involving all the joints of the body The condition was accompanied by continual pains in the joints and muscles and through the neck and chest so that the patient was unable to obtain comfortable sleep during the night or rest during the day He had lost 37 pounds in weight during the three years Three weeks ago Greene made an examination and found all the joints of the extremities greatly enlarged and partly ankylosed The movement of the jaw was so limited that he was not able to put his false teeth into his mouth His right wrist was almost completely ankylosed and there was marked deformity in the hand

He drew 5 c c of blood from the median vein with a hypodermic syringe The blood was placed in an incubator and allowed to remain for twenty four hours The serum was then poured off and plated and placed in the incubator for another twenty four hours A number of colonies were visible Examination showed two distinct organisms a bacillus which was similar to the one described by Ballantyne Wohlmann, and Bloxall and a diplococcus probably the same as Boynton and Payne had isolated from the synovial membranes in chronic arthritis

A bacterin was prepared from these organisms and treatment was instituted on March [illegible] After two weeks the man was able to sleep without disturbance during the night and says his pain has entirely left him The right wrist which was apparently completely ankylosed has markedly limbered up and the swelling has disappeared The circumference has decreased three fourths of an inch He is able easily to insert his false teeth into his mouth His appetite has returned and he gained 1 pound in weight in a week The patient keeps steadily improving Other patients whom Greene has under observation are also improving

Ohio State Medical Journal, Columbus

August 15 VIII No 8 pp 40[illegible]

94 Alimentary Respiration etc R T Woodyatt and E A Graham Chicago
95 Complications and Treatment of Face Presentations A J Skeel Cleveland
96 Smith Operation for Extraction of Cataract A [illegible] Columbus
97 Osteitis Deformans (Paget's Disease) Its Associated Mental Disturbances C W Stone Cleveland
98 Rabies and Its Prevention J Mcl Phillips Columbus

Lancet Clinic, Cincinnati

August 17 CVIII No [illegible] pp [illegible]

99 Work of Cincinnati Association for Welfare of Blind and Its Attitude Toward Prevention of Blindness from Venereal Disease I Stricker Cincinnati
100 What Must Medical Examiner Do to Protect Interests of His Company and How Does He Do It W S Kendrick Atlanta Ga
101 Ice Tongs Extension for Simple Fracture of Femur J L Ransohoff Cincinnati
102 Value of Definite Teaching [illegible] Cincinnati
August 24 CVIII No 8 pp 1[illegible]
103 Skin T[illegible] and Air Bathing [illegible] Worcester Mass
104 *Cardiac Syphilis with Special Reference to Aortic Aneurysm and Regurgitation and Value of Wassermann Reaction in Determining Their Etiology and Treatment R H Babcock Chicago
105 Contraction of Catgut and Theory of M[illegible] W H Strietmann and M H Fischer [illegible]

104 **Cardiac Syphilis.**—The purpose of Babcock's paper is to emphasize the etiologic [illegible] of [illegible] and its two sequels aortic regurgitation [illegible] He says that [illegible] he can hardly [illegible]

known as the vascular type of aortic insufficiency Its clinical findings are not essentially different from those of the rheumatic form and its clinical recognition rests mainly on the age of the individual, the entire absence of a history of articular rhematism or other acute infection likely to be followed by endocarditis, the stiffness perhaps of the accessible arteries and often a less pronounced degree of left ventricle hypertrophy as shown by the breadth and force of the apex beat Not infrequently there is history of the accidental discovery of a cardiac murmur or of the onset of cardiac symptoms without any previous illness that could have in any way led to inflammation of the valves The patient is generally at or past middle age and is more often a male, although this type of the disease may be met with in women of the same age Whenever, therefore such an adult presents himself with signs of aortic leakage and close inquiry fails to elicit a history of articular rheumatism in earlier years or of attacks of tonsillitis Babcock at once suspects syphilis In such cases when possible and in persons in whom history of luetic infection is possible but not definite, he advises a Wassermann test and rarely fails to obtain consent after having explained the advantages therapeutically, at least, of knowning what the reaction is

Of sixteen cases of aortic regurgitation of the vascular type, eleven were submitted to the Wassermann test with a positive reaction in all Of the remaining five a history of chancre was admitted in four while one was not questioned in regard to the possibility of lues and did not take a Wassermann Fifteen of the sixteen cases accordingly could be attributed to syphilis, a percentage of 93 7 During the same period of time Babcock has seen ten cases of aortic aneurysm, the diagnosis in all being made by classical physical signs and confirmed by the skiagraph in those giving rise to any doubt concerning the accuracy of diagnosis Of these ten patients five gave a positive Wassermann reaction two admitted syphilis two gave no history and were not submitted to a Wassermann, while one gave a negative reaction In other words, in seven out of ten cases syphilis was clearly the etiologic factor (70 per cent)

105 **Contraction of Catgut.**—This paper attempts to contribute to the establishment of a colloid chemical theory of contraction in striated muscle A series of experiments on the swelling and contraction of catgut is described, and it is pointed out how these phenomena are not only identical with the physical phenomena of contraction as observed in striated muscle, but how the chemical conditions determining both are also identical A review is given of the work of those men who have contributed most to the establishment of a colloid chemical theory of contraction and to this are appended some critical remarks

West Virginia Medical Journal, Wheeling

August VII No 2 pp 35-70

106 Etiology Pathology and Treatment of Rheumatism and Allied Conditions. W J Judy Webster Springs
107 Medical Legislation in West Virginia C D Lind Greenwood.
108 Prolonged Pregnancy A H Wright Toronto
109 Prophylaxis in Aural Diseases and Their Complications. S M Smith, Philadelphia

Journal Lancet, Minneapolis

August 15 XXXII No 16 pp [illegible]

110 Short Visit to Some Hospitals in Germany Austria Switzerland and Holland W J Mayo Rochester Minn
111 Case of Osteitis Fibrosa Cystica. H J C Koobs Scotland S D
112 Puerperal Infection. C E Spicer Litchville N D
113 Tuberculosis Among American Indians F H Creamer Dupree S D
114 Conservation of Health. W C Chambers Blue Earth Minn

Journal of Indiana State Medical Association, Fort Wayne

August 15 V No [illegible] pp [illegible]

115 Flat-Foot B F Weaver Ft Wayne
116 Value of Cystoscopy in Diagnosis of Hematuria H L Kretschmer Chicago.
117 Case of Probable Acute Poliomyelitis C C DuBois Warsaw
118 Treatment of Raynaud's Disease by Hyperemia L [illegible] Terre Haute

Virginia Medical Semi-Monthly, Richmond

August [illegible] XVII No [illegible] pp [illegible]

119 Vital Statistics [illegible] Norfolk
120 Rôle of Psychotherapy in Pellagra. G M Niles Atlanta Ga
121 Operations for Harelip and Cleft Palate J S Horsley Richmond
122 Treatment of Syphilis H H Hazen Washington D C
123 Physician and Lawyer H J Booth Columbus O
124 Sociologic Factor in Medical Progress. W M Barton Washington D C

Colorado Medicine, Denver

August IX No 8 pp 221-248

125 Headache as a Symptom Its Mechanism and Significance E Jackson Denver
126 Necessity of Knowledge of Psychology in Practice of Medicine E J A Rogers Denver
127 Importance of Accurate Refraction W H Crisp Denver
128 Have We a Specific for Epidemic Cerebrospinal Meningitis? J W Amesse Denver
129 Heat and Its Use in Pelvic Inflammation D S Elder Denver

FOREIGN

Titles marked with an asterisk (*) are abstracted below Clinical lectures single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest

Annals of Tropical Medicine and Parasitology, London

July VI No 2, pp 131-300

1 Measurement of Trypanosoma Rhodesiense J W W Stephens and H B Fantham
2 Microsporidiosis a Protozoal Disease of Bees due to Nosema Apis and Popularly Known as Isle of Wight Disease H B Fantham and A Porter
3 Morphology and Life History of Nosema Apis and Significance of Its Various Stages in So-Called Isle of Wight Disease in Bees (Microsporidiosis) H B Fantham and A Porter
4 Dissemination of Nosema Apis H B Fantham and A Porter
5 *Variations in Number of Leukocytes and Crescents in Malaria D Thomson
6 *Destruction of Crescents Conclusions Regarding Prevention of Malaria by Administration of Quinin D Thomson
7 Hemolysis in Malarial Fever C C Simpson
8 Anti Neuritic Bases of Vegetable Origin in Relationship to Beriberi with Method of Isolation of Torulin Antineuritic Base of Yeast E S Edie W H Evans B Moore G C Simpson and A Webster
9 Morphology and Biology of Prowazekia Urinaria (Bodo Urinarius Hassall) J A Sinton
10 Transmission of Human Trypanosomes by Glossina Morsitans A Kinghorn and W Yorke
11 Measurements of a Thousand Examples of a Short Form of Trypanosome from a Double Infection B Blacklock
12 Leishmaniasis and Babesiasis in Yucatan H Seidelin

5 **Number of Leukocytes and Crescents in Malaria**—In order to support his belief that a large number of malarial parasites on sporulating cause a leukopenia, whereas a small number on sporulating cause a leukocytosis Thomson has tried the effect of hypodermic injections of dead malarial parasites on the leukocytes on twelve occasions Having ascertained the number of parasites per c mm of blood in a case of malaria during a paroxysm, he drew off several cubic centimeters of blood from a vein into an equal volume of citrate solution in a sterile syringe This was transferred to a sterile vessel and phenol added so as to make a 1 per cent strength This was left in the cold for a few days, so as to ensure the death of the parasites By injecting hypodermically a given volume of this material into a person, one was able to watch the effect on the leukocytes of a given number of dead parasites A leukocyte count was made immediately before the injection and two to three more counts made at half hour intervals afterward

In three of these twelve experiments Thomson injected three, four and five millions of malignant tertian parasites respectively, and got a slight increase in the number of leukocytes in one half to one hour afterward In three more he injected doses of thirty to forty millions, and obtained a slight decrease in the number of leukocytes On five occasions he injected from ten to twenty millions and obtained a marked increase of leukocytes in three of these in one half to one hour after the injection The remaining experiment was an injection of five million benign tertian parasites taken during a rigor This resulted in a slight increase of leukocytes in half an hour It would therefore appear that it requires an injection of ten to twenty million malignant tertian parasites to cause a leukocytosis whereas numbers from thirty to forty million and upward cause a leukopenic effect (as in a malarial paroxysm) On one occasion the latter number caused a slight rigor, but no increase of temperature.

6 **Destruction of Crescents.**—The "Ideal Method A" proposed by Thomson is that every adult person in the population (children in proportion according to age) should take twenty grains of quinin daily and simultaneously for a period of three weeks, quarterly, i. e., four times a year. This amounts to 1,680 grains per adult per annum if well during the year, and probably 1,800 grains, if ill at some period in the year. The administration of quinin in doses of 20 grains daily for three weeks is almost certain to destroy both the asexual and sexual parasites. After this period the person will be noninfective to mosquitoes, and freed from a tendency to relapse four times a year. Infective mosquitoes must necessarily become much fewer in number. The amount of quinin taken is less in the end, and none is taken during nine months of the year. After the third day the majority of people feel very little inconvenience when taking 20 grains of quinin daily. Thomson has satisfied himself on this point over and over again with regard to adult males, while in hospital and doing light indoor work.

As an alternative to the above Thomson puts forward "Ideal Method B," which embodies the same scientific principles as "A," but which is more scientific and less tyrannical in its administration. This method B differes from A in that a quarterly census of the blood of the population would be taken before administering the quarterly quinin. Only those who had parasites in their blood would require to take the three weeks' course and those with crescents would if possible be isolated in mosquito-proof hospitals till noninfective. Further immigrants would not be allowed to enter the area until their blood had been examined and pronounced noninfective. Infective immigrants would require the three weeks' period of treatment, with isolation, before being admitted to the population.

British Medical Journal, London

August 17, II, No 2693, pp 353-401

13 Spinal Anesthesia by Stovain. F. C. Madden.
14 Complications Following Administration of Hedronal. R. A. Veale.
15 Congenital Syphilitic Deafness Treated by Salvarsan. C. N. Biggs.
16 Local Application of Salvarsan in Chronic Superficial Glossitis. A. Allport.
17 *Acute Formaldehyd Poisoning. J. Watt.
18 Scheme for Medical Benefit. L. J. Picton.
19 Reform of Hospital Out-Patient Departments. A. S. Parkinson.
20 Children and Dental Diseases. R. J. E. Young and J. S. Wallace.
21 Isolation in Scarlet Fever. C. H. Phillips.
22 Visual Defects in Children. A. A. Bradburne.
23 Administrative Measures Consequent on Compulsory Notification of Phthisis. J. C. McVail and J. Niven.
24 Effects of Intra-Migration on National Health. J. S. Mackintosh.
25 Chemical Effects Produced by Radiations from Active Matter. E. Rutherford.
26 Action of Radium and Roentgen Rays on Malignant Growths. F. H. Shaw and N. S. Finzi.
27 Causes of Failure of Roentgen-Ray Treatment in Deep-Seated Cancer. F. Hernaman-Johnson.
28 Standardization of Radium Dosage. L. H. Howlett.
29 Therapy of Radio-Oxygen Bath. W. Armstrong.

17 **Acute Formaldehyd Poisoning.**—Death in Watt's case was due to swallowing a quantity, not exceeding 1 ounce of commercial formalin. There seems to have been considerable variation in the symptoms, due probably in part to the dosage in other cited cases. Here the points of interest are the tendency to vertigo, the unconsciousness, and the greater implication of the respiratory than the circulatory system, all of which occur in most of the cases quoted. The predominance of cerebral symptoms leading to early death gave little opportunity for the development of signs of irritation of the kidneys and the alimentary canal apart from the intense pain in the latter and the initial vomiting. This case confirms the deduction to be drawn from the others that formaldehyd is really a potent poison probably differing little in degree of toxicity from phenol.

Lancet, London

August 17, II, No [illegible], pp [illegible]

30 Importance of Early Functional Treatment in Cases of Contusions and Sprains of Back. E. Shufflebotham.
31 Epithelial Grafting as Means of Effecting Sure and Rapid Healing of Cavity Left by Complete Mastoid Operation. C. A. Ballance.
32 *Operative Treatment (Lane) of Simple Fracture of Long Bones in Children. H. H. Sampson.
33 *New Method of Demonstrating Presence of Bacillus Coli in Sewage-Polluted Water. C. C. Purvis.
34 *Etiology of Appendicitis as Result of Blood Infection With Particular Reference to Tonsils as Primary Seat of Infection. F. J. Poynton.

32 **Simple Fracture of Long Bones in Children.**—Of simple fracture forty-six cases have been subjected to reexamination by Sampson; of these cases forty-two had been treated by open operation. Thirty-four cases of recent fracture submitted to open operation give—thirty perfect anatomic and functional results, three perfect functional yet imperfect anatomic results, one imperfect anatomic and functional result. Seven cases of malunited fracture submitted to open operation give—three perfect anatomic and functional results, one perfect functional but imperfect anatomic result, three imperfect anatomic and functional results. One case of ununited fracture submitted to open operation gives one imperfect anatomic and functional result. Four of the imperfect cases have such slight defects that function is in no way impaired. Whereas recent fractures give perfect results in over 88 per cent. of the cases, malunited and ununited fractures give a perfect result in only 37 per cent.

This Sampson regards as being a strong argument in favor of the adoption of early operative measures as a routine procedure, because if resorted to after malunion has taken place the chances of a perfect result being obtained are greatly diminished. Perfect function is present in 97 per cent. of recent fractures and in 50 per cent. of malunited and ununited fractures. Sixty patients have been treated by the application of metal plates; thirty-five of these patients have been reexamined. Out of thirty-one recent cases twenty-seven show perfect results, three show perfect functional results, and one has slight impairment of supination of the forearm and has been classed as an imperfect result. Three malunited cases show a perfect result in two instances and a perfect functional result in the third. One ununited case shows a very unsatisfactory result, but no screws could be used, and an attempt was made to fix the plate by means of catgut. The plate was subsequently removed from the last case after a period of three months. The plate was also removed from one other case two and a half months after the operation. In one case the plate was broken while the patient was being taken to the Roentgen-ray room; this fracture was replated a week later. In two cases of malunited fracture of the femur the original plates were removed and fresh ones applied when the deformity had been more fully corrected. With the exception of the ununited fracture the plates were found to be firmly fixed in every instance, and it was necessary to unscrew in order to remove them.

After a sojourn of some months in the tissues a steel plate becomes discolored from oxidation, but no corrosion takes place. On those occasions when after a considerable lapse of time it was found necessary to remove the plate the latter was found in every case to be firmly embedded in the bone.

It has been stated that rarefying osteitis occurs around the screws so that in time they become quite loose. Rarefying osteitis has never been seen in any case of Mr. Lane's at the hospital for sick children. It has been mentioned that lengthening of the limb occurs in a number of cases after a plate has been applied. Slight lengthening was found at the reexamination of the majority of cases of fracture of the shaft of the tibia and several cases of fractured femur. This lengthening was found at varying periods after the operation and was just as frequent at the end of a few months as after the lapse of several years. The age of the child does not seem to have any influence. It is difficult to see how the plate when situated on the shaft of a bone could affect its growth. It seems probable that the lengthening in these cases has either been present since the operation and corresponds to the space intervening between the ends of the fragments, or has occurred during the postoperative immobilization. The lengthening is more noticeable in the tibia because that bone lends itself to such accurate measurement.

33 **Bacillus Coli in Sewage.**—[illegible]
method consists in adding [illegible]

strength) to the nutrient medium e g, agar, and "plating" in the usual way in Petri dishes, then exposing the plates (after the medium has set) to the air for such time as may be deemed necessary Take 100 c c of ordinary nutrient agar, this will require 1 gm of salicylate of soda, which will give 20 tubes for plating, each tube containing 5 c c, or 14 tubes each containing 7 c c and a little to spare It will be found on exposing the plates, or a single plate, to the air and incubating at 37 C that no bacterial colonies will have appeared but only molds and torulae If nutrient gelatin be used for "plating," then the incubation will have to be carried out at a lower temperature (22 C), which is a better temperature for molds but gelatin is unsuitable as a medium in the tropics or even in subtropical climates

The Method of Demonstrating Bacillus coli in Polluted Water —To 100 c c of double strength nutrient broth (10 Eyre) there is added 1 gram of salicylate of soda, the broth is then put into tubes (varying in size) from 25 c c to 1 c c in each tube, and all the tubes are sterilized in the usual way and allowed to cool to each tube is then added a quantity of the suspected water equal in volume to the broth contained in it and the tubes (which now contain salicylate of soda equivalent to 0.5 per cent) are incubated for from twenty four to forty eight hours at a temperature of 42 C If turbidity of the broth results *B coli* may be suspected and its identity will have to be proved by microscopic examination and by biochemical (e g sugar fermentation) tests The only bacillus which is likely to grow along with coli is subtilis and they can be separated from each other, if necessary by plating' If incubation of the tubes be carried out at a lower temperature (37 C) which Purvis does not recommend then *Bacillus proteus* (proteus vulgaris) is also likely to grow far more vigorously than either subtilis or coli *Bacillus typhosus* (laboratory cultures) is completely inhibited by 0 25 per cent of sodium salicylate and even by 0 2 per cent, and does not grow particularly well even in a 0 1 per cent salicylate medium

34 Bacterial Origin of Appendicitis —A girl aged 15 years was suffering from a first attack of appendicitis The illness was a very definite but not unusually severe one and the diagnosis was particularly easy because in addition to the ordinary signs of the disease the enlarged and tender appendix could be easily felt through the abdominal wall The duration of the attack was forty eight hours The right tonsil was inflamed and in some of the crypts a follicular deposit was evident No complaint of a sore throat had been made by the patient, who was no doubt suffering far more from abdominal pain A large and swollen appendix covered with fibrino plastic exudation was removed There was neither gangrene nor perforation and there was no concretion The patient made an uninterrupted recovery There was no previous history of any serious illness

While under the anesthetic a culture was taken from the right tonsil and the appendix was placed in a sterile tube (a) The bouillon culture from the throat showed mainly strepto-diplococci but also a few staphylococci and an occasional bacillus There was no difficulty in isolating the diplococcus from the culture (b) Cultures from the appendix made by smearing the exudate on agar showed mainly the *Bacillus coli* but also some colonies of strepto-diplococci (c) Culture from the sanious fluid which had exuded from the appendix after it had remained a few hours in the sterile tube at room temperature and which had been then withdrawn and incubated in a Pasteur pipette gave a pure culture of strepto-diplococci (d) Some of the sanious fluid inoculated on agar and into bouillon showed strepto-diplococci but a preponderance of the *Bacillus coli* The diplococci from the throat and from the sanious fluid appeared morphologically and in cultural characters identical

Experimental Results With the Culture From the Throat —[illegible] arthritis with the usual accompanying symptoms in the rabbits intravenously inoculated and [illegible] in pure culture from the arthritis exudate The investigations are being continued

Experimental Results With Cultures From the Sanious Fluid —Two groups of investigations were made 1 Six adult rabbits were inoculated intravenously with subcultures in bouillon with negative result This loss of virulence in bouillon is a frequent event in the cultivation of micrococci of the streptococcal group 2 Six young rabbits of six weeks of age were inoculated from subcultures on blood agar Of these animals the first suffered from malaise and diarrhea for three days and on the fourth developed arthritis of the right shoulder joint It was killed on the eighth day The diplococcus was recovered from the inflamed joint The spleen was small and the other organs were healthy The second animal developed arthritis of both knee joints on the third day with fever and malaise It was killed on the fifth day The post mortem examination showed arthritis and appendicitis The appendix showed the middle third as the injured part, and there were necrotic areas in the deeper layers of the wall of the appendix. The diplococcus was recovered in pure culture from the joints The third rabbit developed arthritis of the left knee joint on the third day and was killed on the fifth, save for the arthritis it was apparently healthy The fourth rabbit, after transient malaise, recovered without any local lesion The fifth rabbit developed arthritis of the right knee joint on the third day The sixth rabbit developed multiple arthritis and was killed on the fifth day Thus five out of the six rabbits developed arthritis and one of these in addition appendicitis

Sections of the appendix showed an acute diffuse change mainly affecting the submucous and mucous coats and the serous covering of the bowel The submucous and mucous coats were in a state of acute necrosis, the result of minute hemorrhages from and thrombosis of the vessels in the submucosa A fibrino cellular exudation infiltrated the submucous coat in which the lymphoid tissue was almost completely destroyed. The mucous membrane was infiltrated with inflammatory cells, and there was almost complete destruction of its epithelial covering and of Lieberkuhn's follicles, only a slight trace of the deeper crypts being visible The muscular coat was also infiltrated with inflammatory cells, and the greatly swollen serous layer was edematous and infiltrated with fibrino cellular exudation Diplococci were demonstrated in the submucous and mucous membranes, but were most numerous and easily demonstrated in the serous membrane The *Bacillus coli* had invaded the necrotic tissue and serous covering of the bowel

Australasian Medical Gazette, Sydney

June 22, XXXI No 25 pp 649 672

35 Actinomycosis F W West
36 Anaphylaxis A P Gillespie
37 Snow Blindness in Australian Alps H F Shorney
38 Case of Acute Atrophy of Liver H J Clayton

June 29 XXXI No 26 pp 673 692

39 Knee Joint Problems R H Russell
40 Gastroenteritis L F Ellis
41 Stone in Ureter A J Park
42 Naso-Pharyngeal Fibroma F Tratman

July 6 XXXII No 1 pp 1 24

43 Color Sense in Relation to Emotions G H Taylor
44 Three Cases of Ectopic Gestation R G Scott
45 Complete Inversion of Uterus I Pain
46 Case of Trephining in Epilepsy R M Curtis

July 13 XXXII No 2 pp 25 52

47 Infantile Mortality F S Home
48 Case of Malignant Endocarditis P E W Smith
49 Case of Double Ectopic Gestation L B Lancaster and C Moncrieff

July 20 XXXII No 3 pp 53 80

50 Two Hundred Consecutive Celiotomies A J Nyulasy
51 Rapid Labor in Albuminuria G H Selwood
52 Bilateral Tubal Pregnancy R Worrall
53 Hemorrhage from a Corpus Luteum Cyst F Adams
54 Unusual Absence of Menstruation L M McKillopp

Dublin Journal of Medical Science

August III No 488 pp 81 160

55 Daniel John Cunningham J Little
56 *Pericardial Effusion W Boxwell
57 Case of Henoch's Purpura With Symptoms and Treatment of Disease M S Moore
58 Clinical Report of Rotunda Hospital for One Year Nov 1 1910 to Oct 31 1911 H Jellett R A H Solomons and D G Madill
59 [illegible] Report of Rotunda Hospital for One Year Nov 1 1910 to Oct 31 1911 R J Rowlette

56 **Pericardial Effusion.**—Boxwell maintains that a pericardial effusion requiring any surgical interference at all ought to be treated by resection of a rib cartilage, and free opening of the sac, just as one would open the dura mater to drain a cerebral abscess It is the only safe and satisfactory method, and the very presence of a large effusion makes the operation easier than it would be found in a normal subject This is the line of treatment universally advocated for effusions previously ascertained by puncture to be purulent Boxwell's point is that free opening should be the exploratory, and at the same time the curative, operation for all cases of large effusion, be the character of the effusion what it may A short account of two cases, with allusions to two more, illustrate his reasons for adopting this surgical attitude

Archives des Maladies du Cœur, etc Paris

April V No 4 pp 225 304

60 The Blood Pressure During Digestion (La tension artérielle pendant la digestion) M Loeper
61 Alternating Pulse After an Extra Systole (Du rythme altern ant post-extrasystolique Sa Valeur pronostique) J Heitz
62 Case of Aleukemic Chloromatous Macrolymphocytomatosis (Etude clinique hématologique et anatomique d un cas de chlorome atypique.) Vissavy and C Richet Jr

Archiv für Gynaekologie, Berlin

XCVII No 2 pp 185 328 Last Indexed July 20 p 230

63 *Importance of the Loss of Blood with Gynecologic Operations (Bedeutung des Blutverlustes bei gynäkologischen Operationen) E Weitzel
64 Connection Between Hypophysis Cerebri and the Genital Organs (Beziehungen zwischen Hypophysis und Genitale) B Aschner
65 Rupture of Old Cesarean Section Cicatrix (Uterusruptur in der alten Kaiserschnittnarbe.) R Jolly
66 Sarcomatous Degeneration of Uterine Myoma (Zur Frage der sarkomatösen Entartung der Gebärmuttermyome und des Zusammentreffens mit dem Corpuscarcinom nebst Beschreibung eines Falles von Carcinosarkom des Uterus) P von Kubinyi
67 Corkscrew Treatment of Obstetric Indentation of the Skull (Zur chirurgischen Behandlung der Schädelimpressionen bei Neugeborenen) T Soll
68 *Sarcomatous Degeneration of Uterine Myomas Seven Cases (Häufigkeit sarkomatöser Veränderungen in Myomen) Warnekros.
69 Suture of the Levator Ani (Zur Anatomie und Technik der Levator Fasciennaht) E Martin

63 **Importance of Loss of Blood in Operations**—Weitzel expatiates on the great importance of the loss of much blood in gynecologic operations on debilitated patients By soaking all the cloths, sheets sponges, etc , used in an operation and comparing the hemoglobin percentage of the water with the percentage of the patient's blood taken before and after the operation, it is possible to estimate the amount of blood she has lost (Rübsamen is said to be the pioneer in this line, his work was summarized in The Journal, Feb 10, 1912, p 440) Weitzel has applied the method in forty one cases recently and tabulates the findings They show that the nearer a vaginal operation to the menstrual period, the larger the loss of blood, as also in women farther from the menopause During a pregnancy the hyperemia in the pelvic organs is most intense The loss of blood in removing an ovarian tumor does not seem to be influenced by the size of the tumor the technic in regard to the vessels is the same for all sizes The loss of blood increases proportional to the vascularization of the peritonitic adhesions With abdominal operations, parenchymatous hemorrhage over a large area seldom occurs such as may be unavoidable with a vaginal operation The blood pressure does not seem to influence the hemorrhage at a laparotomy A stout woman with uterine cancer generally loses more blood than a thin patient during a Freund Wertheim operation and the great loss of blood renders the prognosis graver One cachectic woman succumbed to loss of 1 669 c c of blood during this operation while a vigorous woman suffered no serious inconvenience from loss of 1 958 c c

68 **Sarcomatous Degeneration of Myomas.**—Warnekros found microscopic evidence of sarcomatous degeneration in seven of his last series of seventy eight cases of uterine myoma that is, in 10 per cent He thinks that this finding is an argument against roentgenotherapy of myomas, as the seven women would probably all have been lost if the uterus had not been promptly removed In two other cases there was malignant recurrence in six months after removal of uterine myomas in which even the microscope failed to show any cancerous tendency Bumm has reported four cases of sarcomatous recurrence in a series of 200 operative myoma cases Warnekros urges total hysterectomy for all myomas the least suspicious of cancer A patient recently returned with symptoms two and a half years after supravaginal amputation for myoma and a pedunculated sarcoma was found on the stump of the cervix

Jahrbuch für Kinderheilkunde, Berlin

July LXXVI No 1 pp 1 124

70 *Microscopic Findings in Two Cases of Congenital Spastic Paralysis (Zur pathologischen Anatomie der zerebralen Diplegia im Kindesalter) S Miura
71 Osteopsathyrosis L Scholz
72 Defective Bone Growth (Zur Kenntnis der Osteogenesis imperfecta—Vrolik) R Preiswerk
73 Six Cases of Progressive Familial Amaurotic Idiocy in Children H Kowarski

Supplementary Number pp 1 2.2

74 Scarlet Fever Incubation Relapses Traumatic Origin Etc (Weitere Fragen im Scharlachproblem) F von Szontagh
75 Metabolism in Normal Boys (Zur Physiologie des Stoffwechsels im Knabenalter mit bes Berücksichtigung einiger Mineralstoffe) O Herbst
76 Fifty Cases of Direct Laryngoscopy and Tracheobronchoscopy in Children M Paunz
77 *Efficacy of Antitoxin in Diphtheria Affecting the Nervous System (Wirksamkeit des Diphtherieserums bei Beteiligung des Nervensystems bei der Erkrankung.) H Kleinschmidt
78 *Participation of the Adrenals in Acute Infectious Diseases (Zur Frage der Rolle der Nebennieren in der Pathologie und Therapie der Diphtherie und anderen Infektionskrankheiten) W Moltschanoff

70 **Congenital Spastic Paralysis**—Miura calls attention to hip joint disease in the two cases he reports He is convinced that this is more than a mere coincidence The special feature of the *microscopic* findings in both cases was the primary developmental defect in the cells of the motor zone in the brain, a hypoplasia of the ganglion cells The pyramidal tracts were apparently intact in the second case

77 **Important Effect of Diphtheria Antitoxin on the Nervous System in Diphtheria**—Kleinschmidt speaks of the well known affinity of the diphtheria toxin for the nervous system and discusses the action of antitoxin in the cases in which the nervous system has been affected He performed laboratory experiments with guinea pigs brains and concluded from the results observed that there can be no question *that the antitoxin* does actually neutralize the toxin that has already entered into combination with the nerve cells This action however grows less the longer the interval since the infection This teaches that diphtheria antitoxin should be injected early in such quantities and in such a manner as to bring the excess of antitoxin into direct contact with the nerve cells affected Doses as high as 10 000 units three or four times a day should be given The intravenous or lumbar spinal method is best To avoid anaphylactic reactions the serum should be injected slowly and Neufeld advises subcutaneous injection of a small dose before each intravenous injection Nartowski and E Meyer, from their clinical experience have come to the same conclusions H Meyer and Ransom disagree with these conclusions, but Babonneix performed similar experiments with like results Kleinschmidt gives tables showing in detail the findings in his experiments They testify anew to the fact that diphtheria toxin taken up recently by the brain cells can be drawn out of them by antitoxin and by this alone Of course this can be effectually done only when antitoxin is present in amounts sufficient to do the work properly The aim should be to inject the antitoxin immediately and in sufficient amounts to ensure intimate contact between the antitoxin and the nerve cells

78 **The Part Played by the Adrenals in Acute Infectious Diseases**—Moltschanoff made post mortem examination of the adrenal glands in forty two children including twenty nine cases of diphtheria and six of scarlet fever He also performed a series of experiments on guinea pigs injecting them with diphtheria toxin and epinephrin He [illegible] findings in detail all testifying to the [illegible] adrenals especially in diphtheria [illegible] being a very complex one [illegible] against the diphtheria poison [illegible]

first their functional activity is increased, but this soon exhausts the adrenal cells and atrophy follows The resulting acute functional insufficiency of the adrenals causes serious symptoms and sometimes the patients die from this alone Epinephrin at this stage supplies the lacking internal secretion of the adrenals and thus is a very effectual means for restoring the tone of the cardiovascular system He urges that it should be more extensively used in diphtheria and especially early in the disease as a prophylactic measure before the heart weakness manifests itself

Monatsschrift für Geburtshülfe und Gynakologie, Berlin

July XXXVI No 1 pp 1 140

79 Course of Pregnancy and Childbirth After Extraperitoneal Cesarean Section Two Cases (Zur Frage über den Verlauf der Schwangerschaft und Geburt nach extraperitonealem Kaiserschnitt nebst einigen Bemerkungen zur Sterilisation der Frau) L G Litschkuss
80 Artificial Premature Delivery with Contracted Pelvis (Ueber künstliche Frühgeburt bei Beckenenge) V Bagger Jörgensen
81 Vaginal Cesarean Section for Rapid Termination of Delivery or Pregnancy (Die vaginale Sectio caesarea zur raschen Beendigung der Geburt oder Unterbrechung der Schwangerschaft) S S Cholmogoroff
82 *Periodical Pains in Women (Ueber periodische Schmerzen bei Frauen Simpsonsche Schmerzen) G Snegireff
83 Technic for Gynecologic Roentgenotherapy (Zur Technik der gyn Roentgenbestrahlungen) Albers Schönberg
84 Mixed Anesthesia in Gynecology (Ueber Versuche mit neuen Narkose-Arten in der Gynäkologie) H Schlimpert

82 **Diagnostic Significance of Recurring Intermittent Pains in Women.**—Snegireff reviews the features which distinguish the daily intermittent paroxysms of pain liable to accompany cancer of the body of the uterus Retained fluids, a calcified myoma or a cancer may all act as a foreign body in the uterus and induce paroxysms of pain of a periodical character When the pain is due to an inflammatory process it generally begins with an acute onset and then gradually declines, while in the other cases the pain gradually climbs up to its acme The inflammatory pains are also accompanied by fever, chilliness and sweats lacking in the other cases and application of cold relieves the inflammation pain while cold aggravates the pain with cancer and only heat relieves With the inflammatory pains, further the amount of vaginal discharge has no influence on the pain and more or less painfulness persists between the paroxysms With these typical intermittent pains of cancer the intervals are free from pain and the recurrences are more regular He reports the case of a woman of 47 who noted these recurring paroxysms of pain after riding in the street cars the paroxysms lasted an hour or so and then subsided spontaneously After four months they increased in intensity and duration and occurred daily and finally both day and night they were always most severe during the menstrual periods By the seventh month she began to lose weight and in another month or so to vomit A gynecologist then consulted diagnosed hemorrhagic endometritis and a tumor in the uterus which proved inoperable cancer The patient had noticed by the fourth month an odorless reddish vaginal discharge every evening about 6 and that this discharge was most abundant on the days free from pain and scanty on the days with paroxysms The retention of this discharge explained the pains and their periodicity In another case similar intermittent pains were caused by an ordinary uterine fibromyoma as a foreign body which the uterus was trying to expel In conclusion a case is reported in which both forms of intermittent pains were combined, the patient having a fibrous polyp and bilateral pyosalpingitis

Zeitschrift fur Geburtshülfe und Gynäkologie, Stuttgart

LXX No 3 pp [illegible] 930 Last indexed July 27 p 318

85 Nervous and Mental Disturbances Connected with Child-Bearing (Ueber Generationspsychosen und den Einfluss der Generationsperiode auf schon bestehende psychische und neurologische Krankheiten) J L B Engelhard.
86 Electric Irritability of the Uterus Musculature (Experimentelle Untersuchungen über die elektrische Reizbarkeit der Uterusmuskulatur) W Lubsamen and J Burakoff.
87 Rupture of Old Cesarean Section Scar (Ruptur des graviden Uterus in einer alten Kaiserschnittnarbe) O Fischer
88 Etiology of Pyosalpinx T Heynemann
89 Case of Meningitis in a New-born Child (Fall von Meningitis [illegible] eines Neugeborenen infolge rechtseitiger Mittelohrentzündung) H Iwanoff and I Fisch
90 Adenomyoma in a Laparotomy Scar (Ein Adenomyom in einer Laparotomienarbe [illegible]) [illegible]

Brazil Medico, Rio de Janeiro

June 15, XXVI No 23, pp 229 238

91 Abscess in the Spleen (Abcesso do baço) F Luz
92 Coffee and Alcoholism in Russia A B de Mello

July 1, No 25 pp 251 260

93 The Brazilian Electric and the Reflex Method of Treating Aneurysm of the Aorta (Valor da reflexo-therapia applicada ao tratamento dos aneurismas da aorta) A de Freitas

Revista de Medicina y Cirugia, Havana

July 25 XVI No 14 pp 391 416

94 Hygiene of the Streets (Peligros higienicos en las calles) L M Cowley
95 Science and Superstition II R. Perez Vento

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96 The Proteids of Normal Blood Serum and Its Refractometric Index C B Udaondo
97 Dislocation of the Clavicle (Luxaciones de la clavicula) L Bard

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98 *Wine Cider and Gout Motais

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99 Culture of the Spinal Ganglia of Mammalia in Vitro by Carrel s Method G Marinesco

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100 *Cholesterin Content of Syphilitic Blood Serum E Gaucher Paris and Desmoulière

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101 *Growth and Degeneration of Nerves in Vitro G Marinesco and J Minea
102 *Parameningococcic Meningitis (Méningite à paraméningocoques traitée et guerie par le serum antiparaméningococcique Inefficacite du serum antimeningococcique) F Widal and Weissenbach
103 Confinement to Bed as Therapeutic Measure in Mental Disease (De l alitement—Clinotherapie—dans le service central d admission des alienes de la Ville de Paris et du departement de la Seine) Magnan

98 **Wine and Cider in Gout**—Motais reports eight cases of gout, in which he tested the effect of wine and cider The wine used was the red Bordeaux wine, and his conclusions are, 1, that the use, even in moderate quantities, of the red Burgundy or Bordeaux wine while it may not produce gout in healthy individuals, is likely to be injurious to those predisposed to gout or who are suffering from the disease 2 A mild cider well made, but not too hard, prevents gout, combined with rational diet and exercise it becomes a genuine therapeutic agent, diminishing or even reducing the frequency and intensity of the attacks 3 The attention of therapeutists should be drawn to the action of cider in gouty affections of the eye 4 While without doubt the pathogeny of arthritic affections is variable and such conclusions may not apply to all cases of the disease yet the author believes that cider should be not merely allowed to gouty patients, but should be prescribed to the majority as a habitual, perhaps exclusive, beverage

100 **Cholesterinemia in Syphilitics**—Gaucher, Paris and Desmoulière have investigated the amount of cholesterin in syphilitic blood serum and conclude as follows 1 There exists no evident parallelism between the amount of cholesterin in the blood serum and the results of the Wassermann reaction 2 The influence of mercury or arsenic on cholesterinemia is not marked 3 The effects of syphilis on the amount of cholesterin in blood may be distinguished according to whether the case is recent or old In recent cases the changes are slight and variable. On the other hand, in old syphilitics an excess of cholesterin in the blood seems to be the rule

101 **Culture of the Spinal Ganglia of Mammalia in Vitro by Carrel's Method**—Marinesco and Minea have experimented according to the method of Carrel by transplanting pieces of the spinal ganglia of rabbits and kittens into plasma prepared from animals of the same species They found that while the cells of the central portion degenerated those of the periphery grew for a time and sent out fibers some of which passed into the surrounding plasma

102 **Meningitis From the Parameningococcus**—Widal and Weissenbach refer to the researches of Dopter and others showing the occurrence of meningitis produced by an organism closely resembling the meningococcus of Weichselbaum, but differing in its biologic characters This organism has been distinguished by Dopter as the parameningococcus Twelve

cases of this affection have been previously reported and Dopter has prepared a special serum to combat the infection. Widal reports another case of this disease in which the use of ordinary antimeningococcus serum prepared by the Pasteur Institute, was quite ineffective, but on the application of the antiparameningococcus serum prepared by Dopter the patient began to improve promptly. Widal suggests that a number of cases of meningitis apparently due to the meningococcus, but which were uninfluenced by meningococcus serum were in reality due to the parameningococcus. In order to distinguish these cases, biologic tests must be made the simplest of which is the agglutination test. The cerebrospinal fluid should be inoculated onto culture media and tests should be made to determine whether the organism obtained is agglutinated by meningococcus serum or by parameningococcus serum. If it is not affected by the meningococcus serum and it is agglutinated by parameningococcus serum the latter serum should be employed as a remedy. Since in the majority of cases the disease is due to the meningococcus there should be no delay in trying the antimeningococcus serum. In the discussion, Netter suggested that since at least forty-eight hours are requisite for distinguishing between the two organisms it is very desirable that a serum should be immediately administered containing both antimeningococcus and antiparameningococcus serum. He believes that such a serum can be made, similar to the serum of Flexner, which is a polyvalent serum made from organisms some of which are agglutinated only to a slight degree by antimeningococcus serum. He refers especially to the researches of Elser and Huntoon, which showed a great difference in the agglutinability of different forms of the meningococcus. He reports a case in which the disease was not influenced by the serum prepared by the Pasteur Institute, but which recovered after two doses of Flexner's serum. He recommends therefore a polyvalent serum which might be produced in part by injections of the parameningococcus. (See Paris Letter in THE JOURNAL, Aug. 17, p. 556.)

Presse Médicale, Paris

July 13, XX, No. 57, pp. 593-604

104 The Tendencies of Psychiatry in France at the Present Day. (L'esprit de la psychiatrie française d'aujourd'hui.) J. Lepine.
105 *Action of X-Rays on Eosinophils. C. Aubertin and L. Giroux.
106 Industrial Accidents. Traumatic Stricture of Urethra. (Les retrécissements traumatiques de l'urètre.) L. Imbert.

July 20, No. 59, pp. 613-620

107 Treatment with Preparations of the Hypophysis. I. Laguae.

July 24, No. 60, pp. 621-628

108 *Newer Conception of the Venous Pulse. O. Josué.
109 *Tonicity of Mineral Waters Used as Local Applications. (Tonicité de quelques eaux minérales.) I. J. Ménard.

July 27, No. 61, pp. 629-640

110 *Cytology and Serology of Leprosy. E. Jeanselme.
111 Multiple Osseous Dystrophies. L. Baumel.

July 31, No. 62, pp. 641-648

112 *Transfusion of Blood. (La transfusion du sang.) M. Tuffier.
113 *Percussion of the Liver. (Exploration du foie au moyen de la percussion.) W. Orlowski.

105. **Action of X-Rays on the Eosinophils.**—Aubertin and Giroux conclude that the x-rays cause a general increase in leukocytes of all kinds, which is followed by a destructive action. In normal subjects this results in an increase of the neutrophils. In patients with myeloid leukemia the neutrophils are also chiefly increased because these cells are still in a large majority in the blood, although much modified. In a case reported by the authors, in which the eosinophils reached 65 per cent. the leukocytosis was especially an eosinophil leukocytosis. The x-rays therefore do not act on the blood like the infections which produce an exclusively neutrophil reaction, they act equally on the eosinophils. In moderate doses they cause these cells to migrate into the blood, as in the patient reported. In larger doses they destroy them, as in the case of leukemic patients treated by the x-rays.

108. **Newer Conception of the Venous Pulse.**—Josué contrasts the older idea of a venous pulse with the new view resulting from recent investigations. Formerly two forms of venous pulse were distinguished: a true venous pulse supposed to be due to the actual propulsion of blood waves through an insufficient tricuspid valve and a false venous pulse occurring before the systole as the result of the contraction of the right auricle. The physiologic or normal venous pulse presents a certain analogy with the older false pulse since it shows a presystolic wave corresponding to the contraction of the auricle.

The condition formerly known as the true venous pulse which is synchronous with the ventricular systole is observed in certain cases but has a significance different from that which was formerly attributed to it. This form of venous pulse is found in patients presenting complete arrhythmia at the same time with a marked venous stasis. In these cases no wave corresponding to the auricular contraction is found and the wave corresponding to the ventricular contraction tends to occur earlier and eventually coincide with the wave c. There is thus only a single wave coinciding with the contraction of the ventricle. This wave is not due as was formerly supposed to an actual reflux of the blood through an insufficient tricuspid valve but occurs because the pressure being very high in the veins the auricle closed below by the tricuspid valve is immediately filled. The absence of the auricular wave a was at first attributed by Mackenzie to paralysis of the auricle. Later he believed that it was due to the fact that the contraction of the auricle occurred simultaneously with that of the ventricle the impulse arising from the auriculoventricular node of Tawara. This is the nodal rhythm of Mackenzie. More recent investigation has indicated the importance of auricular fibrillation in preventing the formation of an auricular wave.

109. **Tonicity of Mineral Waters.**—Ménard calls attention to the importance of the molecular constitution of mineral waters which are used for local applications to the mucous membranes. He has made an examination of a large number of these mineral waters and among fourteen samples he found two whose freezing point indicated a molecular value hypertonic to that of the blood. The rest were hypotonic. He suggests that the hypertonic waters be reduced to the molecular concentration of the blood by dilution with distilled water. On the other hand the molecular concentration of hypotonic waters can be brought up to that of the blood by the addition of a solution of sodium chlorid.

110. **Serology of Leprosy.**—Jeanselme reviews the investigations which have been made of the serum of leprous patients specially with reference to its reaction by deviation of complement on the application of an antigen made by mincing a leproma, this reaction being known as Eitner's, and to its response to the Wassermann reaction. As a result of his own investigations he found that of forty serums of patients with active syphilis in which the Wassermann reaction was positive the reaction with Eitner's antigen gave thirty-three positive results and seven negative, that is the reaction of Eitner was positive in 82 per cent. of syphilitic patients. In twenty-one cases of healthy men or persons with latent syphilis the reaction of Wassermann and the reaction of Eitner gave equal results. The reaction of Eitner when it is positive with leprosy is as a rule, but not always, accompanied by a positive Wassermann reaction. The antigen of Wassermann and the antigen of Eitner may give a deviation of complement either with a leprous or with a syphilitic serum. The antigen of Eitner is always more sensitive to leprosy and the antigen of Wassermann more sensitive to syphilis thus indicating that the substances in the serums on which these antigens act are related but not identical. While in syphilitic patients specific treatment causes the disappearance of the Wassermann reaction the phenomenon is not exhibited by leprous patients. In one case the author found that the Wassermann reaction in a leprous patient persisted in spite of energetic treatment with salvarsan. This indicates that the response of leprous patients to the Wassermann reaction is not due to syphilis the symptoms of which have been obscured by the leprous condition.

112. **Transfusion of Blood.**—Tuffier presents a simple [illegible] technic for transfusion. There are needed three silver [illegible] coated with paraffin, two pairs of [illegible] forceps [illegible] a very high spring and a large flat [illegible] three [illegible] forceps with very fine points [illegible] curved and two stra

two very fine dissecting forceps and an irrigator, fine silk, fine scissors and a bistoury. The tubes are 3 cm. long and enlarged at both ends and have a diameter of 1.5, 2 and 2.5 mm. They are coated with paraffin melting at 50 C. by plunging the sterilized tube in clear paraffin heated to 130 C., withdrawing and shaking to remove excess of paraffin. A healthy young adult should be selected as the donor. Examination for agglutination and hemolysis, abandoned by Crile, is unimportant. Tuffier always applies the Wassermann test. During the operation the two subjects are placed on adjacent tables and the radial region of the donor and the internal premalleolar of the receptor are sterilized by iodin and anesthetized with stovain. The internal saphenous vein of the receptor is exposed and freed by cutting and tying all the small veins which may hold it. The wound is covered with liquid petrolatum and then with a compress wet with salt solution. The radial artery of the donor is exposed and isolated for a length of 5 cm. and any troublesome arterioles are tied with fine silk and cut. The artery is tied at the lower extremity of the wound and a small hemostatic forceps is placed on the upper part of the exposed artery, care being taken that it does not slip. The vessel is cut obliquely with the scissors for nearly two thirds of its width above the ligature, a triangular wound is thus produced. The two lips of the wound being held by fine forceps, a tube which should be rather larger than the diameter is introduced just beyond the point of its enlargement and a thread is passed around the artery to hold the tube in place. The radial region of the donor is brought close to the malleolar region of the receptor; the vein is tied completely, cut at its lower part, and freed for 4 to 5 cm. The interior is irrigated with a special syringe. The end of the tube is immediately introduced into the vein and the latter is tied over it above the enlargement. The hemostatic forceps are removed and blood flows from the artery into the vein causing appreciable pulsations. During the whole operation it should be noticed every two minutes whether the vein is carrying the blood well, and care should be taken to palpate 1 or 2 cm. above the anastomosis to avoid the error which consists in taking a propulsion of the arterial blood wave for a true expansion of the vein.

When the transfusion is ended the artery is tied above the tube and cut between the tube and the ligature. The vein is tied below the tube with a catgut thread and cut in such a manner that in removing the tube it takes with it the two pieces of vessels which were tied to it.

113. **Percussion of the Liver.**—Orlowski describes his method of applying Goldscheider's threshold percussion to the determination of the lower border of the liver. While the patient is lying on the back with legs extended he percusses along the right mammillary line and also along the linea alba. The index finger of the left hand is laid on the surface of the abdomen making very light pressure so as to avoid vibrations from deeper lying organs. With the fingers of the right hand blows are made so feeble that the sound can only be heard close to the finger which is struck and these blows are always applied parallelly to the linea alba and perpendicularly to the surface of the abdomen. Complete silence must be obtained. The author has compared this method with that of palpation and draws the following conclusions: 1. Orthopercussion (threshold percussion) of the lower border of the liver is a very exact method of examination equaling that of palpation. 2. A floating kidney if present should be returned to its place as otherwise orthopercussion will in many cases determine not the lower border of the liver but that of the kidney. If the region below the right hypochondrium gives a dull sound by ordinary percussion it is not unusual (18 per cent.) for orthopercussion to produce a dull note over the whole extent of this region. In such case in order to determine the position of the lower border of the liver it is necessary to inflate a part of the intestine with air. 3. In cases in which the lower border of the liver is more or less sharply defined and the coils of intestine adjoining this are inflated, orthopercussion determines the position of the lower border of the liver nearer to the hypochondrium than is really the case. 4. The consistence of the liver has an influence on the result of the determination of its lower border. Thus the position of this border of the liver, determined by means of orthopercussion, corresponds more frequently to its real position when the liver is firm than in cases in which it is soft. In fact, in firm livers Orlowski has observed that in 92 per cent. of cases the result of orthopercussion corresponded to the real position of the lower border of this organ, while in cases in which the liver was soft this was true only in 86 per cent.

Semaine Médicale, Paris

July 24, XXXII, No. 30, pp. 349-360

114 *Radical or Partial Extirpation in the Treatment of Genital Cancer of the Female. R. de Bovis.

July 31, No. 31, pp. 361-372

115 *Secretion of Chlorids by the Kidneys in Nephritics with Edema. F. Widal, L. Ambard and A. Weill.

August 7, No. 32, pp. 373-384

116 Hysterical Disturbances in Breathing with Spasm of the Vocal Cords. G. Marinesco.

114. **Treatment of Uterine Cancer.**—De Bovis discusses the value of the enlarged operation of Wertheim for cancer of the uterus and concludes that it has been somewhat modified because it has been recognized that beyond certain anatomic limits the benefits are overcome by the immediate excessive mortality. De Bovis is less inclined than Theilhaber to lay stress on the benefits obtained by partial operations and the extraordinary cures which sometimes follow them. These are exceptions which should not be too strongly emphasized. They prove, however, one thing, that there is a difference between cancerous patients. Some are bound to undergo evolution and metastasis while others have a slower course. The latter are fortunate, whatever the operative technic, the result is remarkable success. The operation, however, should preferably be made extensive while remaining within the limits of human endurance, for, after all, we have no criterion to determine in advance what course an individual cancer will take.

115. **Renal Excretion of Chlorids in the Edema of Bright's Disease.**—Widal, Ambard and Weill report four cases illustrating the influence of a salt free diet and of theobromin on the threshold for the excretion of chlorids by the kidney. This threshold was found to be considerably raised in cases of edema, varying according to the degree of reduction of chlorids. The salt free diet tends to counteract this elevation of the threshold for chlorid excretion. The operation may be slow at first, and exceptional patients are found who do not respond to this dietetic treatment. In most nephritics, with edema, however, it is possible, at will, by giving or withholding salt to produce along with the appearance or disappearance of the edema an elevation of the threshold for renal excretion of chlorids, or its return to the normal. Theobromin acts on the excretion of chlorids in the same way as the salt free diet, producing a marked reduction of the threshold. Thus theobromin has an action on the kidney directly antagonistic to that of sodium chlorid. It occasionally fails to produce any effect. The authors find that nephritics without edema have little or no retention of chlorids, while in those with edema such a retention is more or less marked.

Berliner klinische Wochenschrift

July 22, XLIX, No. 30, pp. 1405-1452

117 *Serotherapy of Tumors. (Heilversuche an geschwulstkranken Tieren mittels tumoraffiner Substanzen.) C. Neuberg, W. Caspari and H. Löhe.

118 Congenital Hypoplasia and Multiple Sclerosis of Ductless Glands. (Spätеunuchoidismus.) W. Falta. Concluded in No. 31.

119 Keeping Quality of Scopolamin Solutions. (Haltbarkeit.) F. Sachs.

120 *Auscultation and Percussion of Organs and Neoplasms in Abdominal Cavity. R. Ehrmann.

121 Duodenal Alimentation. (Duodenalernährung.) M. Einhorn.

122 Increasing Mammary Gland Secretion by Increasing Albumin in Food. W. Flepmann.

123 *Barium Sulphate. (Warnung und Aufklärung in Sachen des Baryumsulfats.) G. Schwarz.

July 29, No. 31, pp. 1453-1500

124 Chemotherapy in Trypanosome Infections. (Trypanosoma Brucei.) L. Brieger and M. Krause.

125 Mutation and Adaptation of Microorganisms. H. Pringsheim.

126 Mechanism of Anaphylatoxin Formation by Bacteria. (Anaphylatoxinbildung aus Bakterien.) H. Frosch.

127 *Anatomic Study of Pneumogastric Nerve in Hypertrophy of Heart. (Nervus depressor bei Herzhypertrophie.) F. Ludwig.

128 *Etiology of Malignant Granuloma. O. Meyer and K. Meyer.

129 Neosalvarsan. C Gutmann
130 Clinical Observations in Diphtheria Epidemic of 1911 O Nordmann
131 Technic of Roentgen Irradiation in Gynecologic Region E. Runge
132 Congenital Hypoplasia and Multiple Sclerosis of Ductless Glands W Falta

August 5 No 32 pp 1501 1548

133 Treatment of Bacterial Infections with Chemicals (Behandlung der bakteriellen Infektionen im Organismus durch Chemikalien) F Blumenthal
134 *Intra arterial Therapy F Bleichröder
135 Etiology and Pathology of Tabes Dorsalis M Bernhardt
136 A Simple Method for Determining the Heart Boundaries with Roentgenoscopy (Röntgenherzgrenzenbestimmung) J Spier
137 *Oxaluria. E. Rosenberg
138 *A Simple Method for Determining Free Hydrochloric Acid in the Stomach. Friedrich
139 *Blood Findings in *Diabetes Mellitus* L. Caro
140 Pharmacology of Cascara Sagrada Flury
141 Experimental Syphilis in Guinea Pigs I Finkelstein
142 Functional Kidney Diagnosis W Baetzner
143 Rest Cure at Sea (Ueber Liegekurschiffe und Liegekuren auf See) M Senator

117 **Serotherapy of Tumors.**—The authors continued their experimental research to the use of various metals in the treatment of mouse carcinoma The best results were obtained with combinations of copper, zinc, platinum and especially with cobalt and silver The result of the administration of these metals was that the tumors softened and became necrotic Microscopic examination of the tissues showed deposits of the various metals used Although the effect on the tumors was a considerable one, the animal itself did not exhibit any untoward symptoms both spontaneous and experiment tumors were affected similarly, but the treatment produced the most marked results in the cases of mouse tumors A very careful search of the tissues in which the tumor had been situated failed to disclose any tumor cells The authors give a complete list of the metals used and the dosage per gram of body weight of the mouse (See editorial in THE JOURNAL, Aug 31, p 724)

120 **Auscultation and Percussion of Organs and Neoplasms in Abdominal Cavity**—The method employed by Ehrmann consists in having the patient in the dorsal position and then pushing the abdomen upward by means of deep inspiration This not only presses the organs nearer to the abdominal wall but also pushes them downward into the abdomen He has succeeded in outlining the gall bladder in a number of cases in which the ordinary percussion failed absolutely The spleen, liver and kidneys were likewise outlined with ease With regard to tumors in one case in which the diagnosis of mesenteric swelling was made, the abdominal pressure showed very distinctly that the mass was in the urinary bladder He believes that abdominal and non suppurating inflammations in the vicinity of the appendix can be outlined by this method As for the stomach and intestines these organs can easily be outlined and the findings verified by means of skiagrams

123 **Barium Sulphate in Roentgenoscopy**—Schwarz sounds a warning as to the use of barium sulphate in making skiagrams of the stomach and bowels because of the possibility of using a poisonous barium sulphid He has been advised of several instances of poisoning He would have a careful chemical examination made of the barium sulphate that is to be used for skiagraphic work and then label it so that no mistake can be made

127 **Anatomic Study of Pneumogastric Nerve in Hypertrophy of Heart**—A very careful study of sixty three cases with regard to the relationship existing between heart hypertrophy and the influence of the nervous system on the heart has convinced Ludwig that no nerve disturbance is characteristic of cardiac hypertrophy Any alteration which may be found present he believes to be merely incidental The same is true in cases of enlargements of the ascending aorta although here one frequently finds lymphocytic infiltration as well as free hemorrhage or residual evidences of hemorrhage, without however in any way interfering with nerves or ganglia Nevertheless the author emphasizes the fact that the depressor nerve must be regarded as a safety valve of the heart and that anything which interferes with this action may cause a cardiac hypertrophy He still fears in spite of his negative histologic finding that the depressor nerve stands in some relationship physiologically to the blood pressure, variations and enlargement of the heart

128 **Etiology of Granuloma.**—The authors have investigated the exciting cause of malignant granuloma clinically as well as experimentally and are convinced by their findings that the Fraenkel Much bacillus is in reality a variant of the tubercle bacillus The authors report one case of typical malignant granuloma of the lungs and lymph nodes associated with a miliary tuberculosis of the liver spleen and kidneys No primary tuberculous focus was demonstrable elsewhere in the body They cite evidence to the effect that this granulomatous bacillus may be transported from the seat of granulomatous disease to other parts of the body and there produce a typical tuberculous lesion Reasons for the morphologic and biologic variations of this organism have not been determined.

134 **Intra-Arterial Therapy**—Bleichröder harks back to a series of experiments made by him several years ago in which he attempted to investigate the process of metabolism by withdrawing blood directly from the inferior vena cava at the mouth of the hepatic vein by means of a catheter This work led to the thought that it might be possible to inject medicinal agents into the arterial blood stream in a similar manner Experiments on dogs confirmed the correctness of his belief and also demonstrated the fact that the method was free from danger Before trying out the method on the human being he experimented on his own person a catheter was inserted into the vein of the lower arm and passed up to the axilla A second catheter entered a vein of the thigh extending into the vena cava These experiments were negative in that they were not followed by any untoward effect The author has utilized this method in the treatment of puerperal sepsis The result was not particularly encouraging although the cases in which it was tried were of the very worst type and little was to be expected from any method of treatment In one case collargol was injected in the twenty four days of the disease, resulting in a crisis which could be charged to no other circumstance than the treatment The injection was made through the femoral artery by means of a ureteral catheter He believes the method is worthy of further trial

137 **Oxaluria**—The author reports two cases of transitory oxaluria associated with gastro intestinal disturbances He is convinced that the intestinal trouble was the unquestioned cause of the oxaluria although he does not offer any explanation as to how this cause affected the metabolism so as to produce oxalic acid

138 **A Simple Method for Determining Free Hydrochloric Acid in the Stomach**—Friedrich uses neither sound nor special apparatus His method consists in producing the necessary chemical reaction directly in the stomach by means of threads saturated with congo red A small metal cylinder with rounded edges is enclosed in a capsule and attached to a long thread dyed with congo red another dyed with one free end is attached to the cylinder and enclosed *with it in the capsule* This capsule with its enclosed metal cylinder is swallowed readily by the patient twenty minutes after the usual test breakfast has been given Half an hour later it is withdrawn by means of the long thread and according to the evidence of the reaction on the thread will depend the amount of free hydrochloric acid The author has had no difficulty in getting his patients to swallow this capsule and he has repeatedly verified his findings by means of other tests It should be mentioned here that the long thread is dyed a [illegible] whereas the short thread is dyed pink so that the [illegible] of reaction may be noted The author has laid down the following scale of the reaction for himself [illegible] dark red thread indicates abnormal acid [illegible] blue black shows normal or hyper[illegible] In the [illegible] of hyperchlorhydria [illegible] condition is of high grade [illegible] hydria is extremely [illegible] immediately when the [illegible] touched with [illegible]

139. **Blood Findings in Diabetes Mellitus.**—Caro studied the blood in twenty-eight cases of diabetes mellitus. He invariably found a reduction of hemoglobin and a decrease in the number of red cells. He failed to find leukocytosis. In twenty-two cases there was a relative lymphocytosis, in fifteen cases as high as 40 to 70 per cent. In only six cases was the lymphocytosis slight in degree. These patients invariably suffered from gangrene, tuberculosis, etc. In eight cases there was a distinct eosinophilia. The degree of lymphocytosis was not an indication of the severity of the case or of the amount of sugar found in the urine.

Münchener medizinische Wochenschrift

July 23, LIX, No. 30, pp. 1641-1696

144 *Idiosyncrasy Against Salvarsan. (Zur Frage der Idiosynkrasie gegenüber Salvarsan. Insbesondere sind Hautimpfungen mit Salvarsanlösungen zur Feststellung einer vorhandenen Idiosynkrasie brauchbar?) K. Zieler.
145 Examination and Treatment of Isolated Pupillary Disturbances Resulting from Previous Syphilis. (Bedeutung der modernen Untersuchungs- und Behandlungsmethoden für die Beurteilung isolierter Pupillenstörungen nach vorausgegangener Syphilis.) G. L. Dreyfus.
146 *Determination of Diphtheria Bacilli. H. Conradi and P. Troch.
147 Calcium Chlorid for Enriching Tubercle Bacillus. (Einige weitere Erfahrungen mit dem Kalziumchlorid-Anreicherungsverfahren für Tuberkelbazillen.) A. Zahn.
148 Urethrothermic Therapy. P. Scharff.
149 Treatment of Urethral Stricture by Means of Bougies Causing Hyperemia. P. Kobelt.
150 Palliative Treatment of Prostatic Hypertrophy. H. Joseph.
151 Roentgenoscopy of Lung Apices. F. Holst.
152 Pituitrin as a Postoperative Tonic. (Pituitrin als postoperatives Tonikum mit besonderer Berücksichtigung der Blasenfunktion.) R. T. Jaschke.
153 *A Comparison Microscope. W. Thorner.
154 Acetonemia in Children. L. Silberstein.
155 Reinfection After Salvarsan Treatment. H. Wüstenberg.
156 Three Fatalities Following Use of Salvarsan. F. Hirsch and F. Hammer.
157 Acute Traumatic Origin of Retroflexion of Uterus. J. Ziegenspeck.
158 *Perforation of Rectum Due to Rectoscopy. O. Retzlaff.
159 Local Cutaneous Gangrene Caused by Luminal Injection. K. Fürer.

July 30, No. 31, pp. 1697-1744

160 Epilepsy. (Die Epilepsie als klinischer Krankheitsbegriff.) L. W. Weber.
161 The Significance of Toxic Products of Decomposition of Albumin in Labor and Eclampsia. (Ueber die Bedeutung der Eiweisszerfallstoxikose bei der Geburt und der Eklampsie.) R. Franz.
162 Neosalvarsan in Syphilis. A. Wolff and P. Mulzer. (Erfahrungen mit Neosalvarsan.) K. Kall.
163 Electromagnetic Arsenical Treatment of Cancer. (Die ersten Versuche mit einer neuen Kombinationsbehandlung des Krebses: Elektromagnetische Reizarsenbehandlung.) H. Spude.
164 Atophan. H. Bach.
165 *Fracture of Femur of Child During Birth. (Zwei merkwürdige Fälle von Oberschenkelfraktur des Kindes unter der Geburt.) Berthau.
166 *Plastic Operation on Rectum. (Plastischer Ersatz des vorderen Teils des Mastdarmrohrs durch die hintere Scheidenwand.) W. Coebel.
167 Iron Content of Human and Cow's Milk. (Ueber den Eisengehalt der Frauen- und Kuhmilch.) L. Langstein and F. Edelstein.
168 Wassermann Reaction in the Cadaver. G. B. Gruber.

144. **Idiosyncrasy Against Salvarsan.**—Zieler emphasizes the fact that the occurrence of a skin eruption after the use of salvarsan is to be regarded as an idiosyncrasy against arsenic. He would not consider this condition analogous to the serum disease caused by anaphylaxis. On the contrary, it is merely a cumulative effect which may be manifested after a single injection of salvarsan. He has never observed or heard of an hereditary idiosyncrasy and therefore it is impossible to determine the existence of such an idiosyncrasy by means of a salvarsan vaccination.

146. **Determination of Diphtheria Bacilli.**—The authors have used a new culture medium for isolating the diphtheria bacillus. Ten gm. of meat extract, 5 gm. of sodium chlorid, 20 gm. of peptone [Witte] and 6 gm. of calcium acetate are added to 1,000 c.c. of water. The mixture is placed over the water-bath for one half hour and filtered. The filtrate is slightly acid and 1 per cent. of grape-sugar is added to it. One part of this mixture is added to three parts of fresh [illegible] serum and to 100 c.c. of this blood-serum mixture [illegible] of a 1 per cent. solution of potassium tellurite is added. The mixture is then shaken and distributed in Petri [illegible]. The mixture is allowed to congeal and is then ready [illegible]. The original culture of the suspected material is made on Loeffler's blood-serum. The culture is incubated for three hours at 35 C. and then a culture is made from it on the tellurium plate. This plate is incubated for twenty hours at 35 C. and the original Loeffler plate is allowed to continue development and growth for eight hours so as not to interfere with examination of such bacilli as have developed in this plate. If diphtheria colonies are visible on the Loeffler plate further examination of the tellurium plate is unnecessary. If, however, the former fails to show any diphtheria cultures the latter must be examined. The diphtheria colonies will be colored black, the result of a reduction of the tellurium dioxid. Even the diphtheria bacillus contains these dark spots. The authors have had splendid results clinically from the use of this method of examination.

153. **A Comparison Microscope.**—This instrument is constructed on the basis of a stereoscope and serves to compare normal with pathologic tissues. It is practically two microscopes with a single eye-piece, connecting the two tubes so that half of the field may, for example, show a normal lung section and the other a pathologic section.

158. **Perforation of Rectum Due to Rectoscopy.**—Retzlaff reports a case of perforation of the rectum of a man 58 years of age, *the result of a rectoscope examination*. The patient was examined in the knee-chest position and suddenly complained of abdominal pain. He went home and succeeded in having a bowel movement. In the afternoon he had severe intestinal colic, with vomiting, but soon collapsed. A laparotomy was done four and one-half hours after the rectoscopy. There was every evidence of an intense peritonitis and in the anterior wall of the rectum just above the rectovesical space was a tear 2 cm. in length, through which the rectal mucosa protruded. The tear in the bowel wall was sutured, the intestinal loops were cleaned with wet compresses and 80 c.c. of a 10 per cent. camphorated oil were poured into the pelvis. The patient made a complete recovery.

165. **Fracture of Femur at Birth.**—Berthau reports two cases. The first was a favorable presentation with contracted pelvis and prolapse of the umbilical cord. The author performed version, grasping the left foot of the child so that when traction was made the right leg was drawn up and the thigh was flexed on the body. The child was delivered without any trouble. While it was being bathed it was noticed that there was a fracture of the right femur at the junction of the upper and middle thirds. In the second case the fetus was in the transverse position, the left arm presenting. The extraction was accomplished in the same manner as in the previous case, although during the delivery there was a slight obstruction which was readily overcome by a strong tug on the left leg, when a distinct cracking sound was heard. Delivery was then effected without any further trouble. The child cried as soon as it was born and on examination it was found that the femur was fractured as in the first case. Both fractures were treated by extension and the application of a plaster cast.

166. **Plastic Operation on Rectum.**—Coebel reports the case of a woman 60 years of age who had a scirrhotic carcinoma of the anterior wall of the rectum. The tumor was removed and the rectum drawn down to the anal margin and sutured. The result apparently was a good one but there soon appeared a rectal fistula opening into the vagina, just below the cervix. On examination it was found that the rectum and vagina had become firmly united into a cicatricial mass. This fact and the age of the patient made it impossible to do a second operation like the first; therefore the author dissected free from the lateral vaginal wall a flap of mucosa which he turned around into the rectum so that the vaginal mucous membrane became the rectal mucous membrane. A further plastic operation was done in the vagina to cover the defect. The patient made a splendid recovery from the operation and six months afterward was apparently in perfect health. She had gained in weight, looked well and the carcinoma apparently had not recurred. The vagina was somewhat constricted. The patient did not complain of any intestinal disturbance, and she had perfect control of the rectum.

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HOW MAY THE SCIENCE OF THERAPEUTICS BE ADVANCED? *

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In studying this subject, it is necessary to consider briefly the conditions under which our present system of therapeutics has developed, practically unaided by the fundamental sciences. The science of bacteriology is of comparatively recent origin, it has enabled us to determine not only the nature of some of the infectious agents, but also their distribution in the body, the effect of external agents on them, and to study experimentally their behavior in animals as well. We are at present in the midst of extensive studies in metabolism, so essential in illuminating the dark places in pathologic physiology, by revealing to us the behavior of cells in diseased states. The same is true of the studies now being made in immunity, information directed at the very foundation of disease. Still more recent is the field of experimental therapeutics, where the action of drugs may be observed on animals in which diseased conditions have been experimentally produced. The effect of diuretics in experimental nephritis is an excellent example of what we may expect from investigations by this method. Studies along the above lines are fundamental and must be understood before therapeutics can be developed along scientific lines. Our therapeutic forefathers are not to be censured, as, with the means at their command, they did surprisingly well. The present unsatisfactory state of therapeutics has not been due chiefly to the lack of properly trained clinical minds, but rather to an insecure foundation on which to establish rational therapeutics. The few valuable empirical remedies now at our command give us only a faint conception of the fruitless efforts of thousands of earnest workers in this field. In the majority of instances the attention of the physician was attracted to these remedies by lay people, who in using countless vegetable substances had detected some with real curative powers. We may perhaps smile at the logic of some of these ancient clinicians, but only when we fail to realize the wonderful advances made in the fundamental branches of medicine in recent years. An illustration of this is a comparatively modern discovery of the value of salicin in the treatment of acute articular rheumatism. Maclagan, an Englishman, was first to make this discovery. In the London *Lancet* in 1876 he describes the beneficial action of this drug, which was the first of the salicyl group to be used in the treatment of rheumatism. Maclagan believed that for all miasmatic diseases there could be found some antidote in plants or trees growing in the same climatic surroundings as favored the development of this particular disease. This he considered one of the wise provisions of Providence and in support of his theory referred to cinchona and ipecac as growing in tropical countries where malaria and amebic dysentery were prevalent. As damp surroundings favored the development of rheumatism, he directed his studies to vegetation growing in low grounds. The willow naturally attracted his attention. He knew that salicin was made from its bark and he thus introduced it in the treatment of rheumatism. In the interesting discussion following his discovery, an English surgeon in South Africa refers to the common use by the Hottentots of a decoction of willow twigs in treating febrile disturbances and especially acute arthritis.

With this haphazard method of selecting therapeutic agents, it is not surprising that many fallacious observations were made and certain drugs acquired unwarranted repute as remedial substances, until, as the result of the accumulation of ages, we are now burdened with a mass of drugs without remedial qualities, or at least without these powers being definitely proved. It would seem that the time had arrived, with our modern methods of investigation, to separate those of real value from the worthless. There is about these questionable drugs which crowd our Pharmacopeia nothing sacred that should prevent our carefully working them over experimentally, and, when essential, clinically, to determine their real value. It would seem that, to place our therapeutics on a real scientific basis, work of this character must be done. It is true that much work of this character has already been performed, especially by the pharmacologist. The therapeutic value or worthlessness of man [illegible] these drugs can, however, be worked out only at the bedside. We should not content ourselves by saying that these supposed remedies are in the majority of instances harmless, and, therefore, may be permitted to remain. While we may not be able to modify materially the Pharmacopeia, we as teachers of medicine should see that the student is taught only facts and writers of textbooks in medicine should observe the same discretion in their discussion of treatment as they do in the pa [illegible] and symptomatology of diseases. The subject [illegible] peutics as taught by the pharmacologist is [illegible] open to criticism from a scientific standpoint [illegible] taught by the clinician. This is especially [illegible] the chairs of pharmacology in our medical [illegible] been filled by men who devote their entire [illegible] teaching and research.

We have not, however, inherited all [illegible] fallacies, many are of comparatively [illegible] commercial pharmaceutical [illegible] ble for a long list of drugs [illegible] of existing preparation [illegible] with many valuable remedies [illegible] however, almost uniformly exploited in an entirely unscientific manner, with false statements in regard to the nature of the preparation, and unwarranted claims in regard to their therapeutic value. It is perhaps a conservative statement that the majority of physicians are more interested in and more influenced by this class of literature than they are by text-books in pharmacology. Direct evidence on this point is the frequency with which proprietary preparations appear in the physician's prescriptions. By the proper enforcement of the pure food law and through the activities of the Council on Pharmacy and Chemistry of the American Medical Association this evil is being curbed. The services rendered to scientific therapeutics through the Council on Pharmacy and Chemistry is inestimable and should receive the hearty cooperation of all clinicians.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City June, 1912.

Another important factor responsible for the present practice of therapeutics is the attitude of many teachers and text-book writers in medicine. It appears that often, while their discussion of *the etiology, pathology,* symptomatology, diagnosis and prognosis of disease is of highly scientific character, when they pass to the realm *of therapeutics, there is a vagueness which is not in* keeping with the previous discussion. If we admit that this is true what explanations may be offered? Are therapeutic facts really more elusive than those of pathology and diagnosis and if so, why? Here it appears a factor is introduced which, to my mind, is more responsible than any other element for the different status of therapeutics, and, we will say, diagnosis. An important function of the physician is to cure disease; he receives his fee chiefly because he is able to benefit his patient. Diagnosis interests the layman only as making prognosis possible and paving the way for treatment. The physician is human and wishes to render service commensurate *with his fee.* This *not infrequently leads to the* unconscious ascribing of improvement to the treatment and especially the drug treatment of the condition. The physician, at times, fails to realize that the detection and correction of errors of diet, insufficient exercise or recreation, abuse of alcohol, tobacco or coffee, or unnecessary worry require as much medical skill and are as fully appreciated by the patient as the administration of drugs. Proper instruction of the patient on these points may be largely or solely responsible for his improved condition. Nevertheless if he has been given a prescription, this is too apt to be accorded unwarranted credit by the patient and acquiesced in by the physician. He *is too frequently unwilling to admit of the futility of the drug.* Against his better judgment, he becomes somewhat biased. In the diagnosis, this element does not enter as the patient is little interested in the name of his ailment, except as to its curability. The physician therefore makes these observations in an unbiased manner and presents them frankly to the patient. Fundamentally the collection of facts in therapeutics is quite as feasible as in any other branch of medicine, *though it may require broader judgment and greater insight into the factors to be considered.* We *must* accept negative results, consider the influence of nonmedicinal measures as diet, habits, rôle of suggestion, [illegible] especially must we obliterate self as regards the opinion the patient may have of our abilities as physicians. When the results of treatment are scanned with the same care as matters in pathology and diagnosis, the observations of the physician will consist mainly of f[illegible]

The [illegible] teacher in clinical medicine, having carefully [illegible]ated his patient, may feel somewhat embar*rassed in admitting that, with our present knowledge* of medicine, there is little to be expected from any form of drug treatment. It is, however, only just to our students that *we take this stand provided we are certain* of our position, rather than give them a list of drugs that have been recommended in the disease, which our knowledge of pathology and pharmacology, as well also as personal clinical experience has shown, are valueless. After all, if the physician thoroughly grasps the actual field of usefulness of drugs, the conditions in which surgical interference is indicated, the importance of hygiene, diet and psychotherapy, when proper individualization is observed, he will be able with our present knowledge of medicine to cure many and to benefit many more.

The clinician, however, has not been alone responsible for the present confused state of our therapeutics. If we can criticize the practitioner as being unscientific, it may be said of the pharmacologist that he is oftentimes unpractical. The main object of pharmacology, from *the purely medical standpoint, is to obtain the action* of drugs with the expectation of applying this knowledge to the treatment of disease. The pharmacologist, in addition, is interested in the action of drugs from a purely scientific point of view, even when this knowledge has no direct bearing on the treatment of disease. The pharmacologist's shortcomings are largely due to lack of contact with the clinician and especially with clinical material. This, not infrequently, has resulted in his suggestion being too vague and often impossible of application. Perhaps the method of administering the drug in the laboratory is not applicable at the bedside. Few drugs are administered to patients intravenously, *yet the majority of our pharmacologic observa*tions are made on drugs injected into the circulation. It would seem that more observations should be made by the pharmacologist on the action of drugs introduced into the stomach. Such a method may be very tedious and the results variable, but they will, nevertheless, show us what to expect at the bedside. Digitalis, when administered intravenously to an animal, causes a decided rise in blood-pressure, and it has, therefore, been taught that its use is contra-indicated in patients with high blood-pressure, although it has been conclusively proved recently that, when administered to man by mouth, it does not raise blood-pressure. Suprarenal extracts when *administered by mouth do not increase blood-pressure,* and in the laboratory animal rarely increase blood-pressure when given intramuscularly, while in man their intramuscular use is quite uniformly followed by a rise in blood-pressure varying from 20 to 30 mm. of mercury. While the above examples are unusual, they show, nevertheless, the importance of laboratory work, more closely following the clinical method of administering drugs.

Passing now to the means of putting therapeutics on a more scientific basis, a very important measure is the standardization of drugs. The laboratory worker and clinician *must be certain of the uniform strength of the preparation used.* Excellent work is being carried on at present in this phase of the subject, and has progressed far enough to convince the most skeptical of its importance. Unless the clinician can be assured of the strength of his drugs it is practically futile to undertake comparative observations.

The rapid development of experimental therapeutics is a most encouraging sign of progress. While its field will probably always be limited, it permits the pharmacologist to study carefully in his laboratory the action *of drugs in pathologic conditions.* The work already accomplished in the action of diuretics in experimental nephritis is a good index of what we may expect in the future from this line of research.

Closer cooperations of the clinician and pharmacologist would do much to place therapeutics on a more scientific basis. The pharmacologist, with his special training, by working in conjunction with the clinician can carry on at the bedside those observations which he has in the past so creditably performed in the laboratory. This has already been undertaken by Cushny and MacKenzie in England and by Sollmann and others in this country. It is distinctly a step in the right direction. This is not intended to detract from the valuable observations which the clinician alone may secure, as any clinical observer may obtain most valuable information, even with a limited material, provided his attitude is unbiased and he records and interprets correctly the information obtained. These observations, however, can best be carried out in a systematic manner in suitable hospitals. The university hospital should offer ideal conditions, with plenty of free beds and a dispensary as a feeder, it becomes possible to study groups of cases therapeutically. In the majority of existing hospitals, conditions are not favorable for such investigation. There is not a sufficient number of free beds, and these are not and usually cannot be filled with selected cases. In addition, the lack of properly trained assistants and nurses who can be relied on to carry out instructions carefully is most discouraging to the investigator. Such a hospital should be supplied with the necessary apparatus for making careful observations. Under these conditions, the clinician and pharmacologist, working in harmony, could do much to clear away the haze in which our clinical therapeutics is now enveloped. The university hospital is a much-needed institution, not only for the proper instruction of medical students but also to develop research in certain phases of clinical medicine.

With suitable conditions, however, the therapeutic action of only a limited group of drugs is capable of definite clinical demonstration. The action of digitalis, for instance, can be quite accurately observed at the bedside. The character of the pulse, size of the heart, relief of dyspnea, disappearance of edema and increased diuresis give evidence of the action of the drug. With due consideration of the rôle played by rest, it is possible to determine with reasonable accuracy the actual effect of this agent. By multiplying the observation, we can obtain reliable data. There is, however, a rather small group of drugs that can be studied in this manner.

In another very large group of cases, we must pursue another method of investigation. In the majority of the acute infections, it is not the immediate effect of the drug that determines its curative powers, but the way in which it modifies the duration of the disease, the frequency of complications and especially the mortality. The variable duration and mortality of the same infection in different individuals being known, and also the variations in different epidemics and the effect of age and habits, it becomes necessary not merely to collect a large number of cases but actually to conduct a control series. The average clinician lays too little stress on the importance of control cases. We have numerous instances of the fallacy of drawing conclusions from statistics of a series of cases treated in one epidemic and comparing these with a series treated differently in another epidemic. In pneumonia where the mortality is so dependent on the age of the patient it would not be fair to compare statistics from a military hospital, where only young robust men are treated, with those from a general hospital where all classes and ages are accepted. In the acute infections, however, it is necessary only to supply properly trained observers with a sufficient amount of material to obtain accurate data.

The investigation of another group of cases offers almost insurmountable difficulties. I refer especially to that class of functional nervous disturbances grouped under the name "neurasthenia." Many — and perhaps most — of the therapeutic fallacies now in our medical literature are due to the misleading results obtained from treating this class of cases. The neurasthenic is a creature of suggestion. A change of physician, a change of medicine or even a change in the flavoring extract used may be followed by marked improvement. The continued growth of Christian Science is largely due to the prevalence of neurasthenia. Psychotherapy has here a legitimate field. With the individual so open to suggestion, it is practically impossible to obtain accurate information in regard to the actual effect of a drug on the condition. Even more confusing to the therapeutists is the group of neurasthenic symptoms which very gradually envelop the patient, suffering from chronic organic disturbances. The patient with carcinoma, chronic nephritis or locomotor ataxia gradually acquires a group of nervous symptoms, the indirect result of the primary disease. It is often extremely difficult to determine which of these are functional in character and which are due to the organic lesions. Patients with a progressive disease like carcinoma may temporarily gain in weight and consider themselves much improved after a change of physician. The relief obtained in this group of cases after taking up Christian Science or certain fakes is due to the disappearance of these functional nervous disturbances. Reports of marked improvement and cures in chronic conditions generally recognized as incurable are not confined to the outcasts or hangers on of the profession. Responsible medical men may often be deceived in this class of cases. At the time when Brown-Sequard's testicular extract came into vogue, some well known physicians reported remarkable results in locomotor ataxia after its use.

We might multiply the sources of error and the remedies to be applied. The above, however, is sufficient to call attention to some of the salient features. The outlook is exceedingly encouraging, and while we may chafe at the delay, development along the right lines is already well under way. The therapeutics of today is far in advance of that even of ten years ago. While new obstacles are appearing along the entire line there is distinct evidence of improvement. The limitation of drug therapy is better understood, and has led to development along the lines of diet, hygiene, etc. Most encouraging is the stand taken by many of our patients that they prefer to be treated if possible without taking a lot of medicine. Our teachers in medicine are each year growing more conservative. Each year will register the elimination of some therapeutic fallacies and help in the acquisition of therapeutic knowledge acquired by scientific investigation.

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ABSTRACT OF DISCUSSION

Dr. George D. Kahlo, French Lick Springs, Ind.: The tendency in the teaching of modern therapeutics is to dwell entirely too much on the treatment of disease by drugs alone and to give too little attention to the subjects of therapeutic suggestion, climatology, hydrotherapy, exercise, diet and other measures which often are of much greater value than the use of drugs themselves.

DR. JOHN P. SAWYER, Cleveland: It is one thing to look on drugs as having an action, it is another thing to look on drugs as having an action peculiar to this or that tissue of the body. In our common use of the terms "drug action" and "therapeutic effects of drug" we are actually losing sight of what is known to both the physiologist and pathologist, that in drugs, heat, electricity, massage, hydrotherapy, we are using merely stimuli applied to the organism which we are seeking to aid in its struggle against disease and that the pharmacologist and the medical man can get together a little better with caution in regard to the use of this term "drug action." It is convenient but it is a little befuddling at times. We think too much of the drug itself and not enough of the personality of the patient with whom we have to deal.

DR. S. SOLIS COHEN, Philadelphia: Dr. Kahlo is too severe [in s]aying that the subject of physiologic therapeutics does not now receive attention in the medical schools. Certainly, in the leading schools the professors of medicine and of therapeutics and their assistants lay great emphasis on all of the measures to which I have ventured to apply that title. In fact, the pendulum now is in danger of swinging too far that way, owing to injudicious and extreme public utterances by certain physicians. Should a patient come to me and say "I want to be treated without medicine," much as I favor that method in appropriate cases, I would tell that patient to go to some other physician. The function of the physician is to help his patient, it may be by suggestion, by a drug, by heat, electricity, mechanical manipulation, diet or exercise, but the physician and not the patient must be the judge of what is the best measure. I dislike all such terms as "cure," 'remedy" or 'drug action." I protest against the implication that, whatever may have been the situation two decades ago, at present physiologic therapeutics is not thoroughly emphasized. To me the danger seems rather that the medical student and the [illegible] public may underestimate the very potent help that [illegible] drugs properly selected and judiciously used. Not only [can] we get rid of the term 'drug action," however, but we also get rid of any implication that it is the drug that [gene]rates the effect and not the reaction called forth in the tissues. Nevertheless without the drug there would be no such reaction. But I do think we must go a step further in our conception of disease—disease as a whole, not special forms of disease. I have formulated the phrase that 'disease is the struggle for health.' Unless we look at it from that point of view I think we shall be very much misled. Take acute infections as one class for example. When bacteria invade nonorganic matter or dead organic matter there is no reaction except the mere destructive changes that take place. But when they invade a living organism there is an intense reaction reconstructive as well as destructive. That whole reaction is disease; hence it is the struggle for health. Unless we realize that it is our duty to guide that struggle and to hold it within bounds, to limit destructive reactions, to aid and supplement reconstructive reactions and to prevent unbalanced reactions from introducing new dangers and that this is all we can do with our drugs or our other measures, even our [illegible] our salvarsan, our antitoxins, our vaccines—then we [are] going to make mistakes whether we diet our patients or [illegible] them or simply fold our arms and look at them.

DR. W. BENHAM SNOW, New York: We should not hesitate [to] use the word "cure" when we can restore normal conditions. [Our] patients want the encouragement and should have it, pro[vided] we have the means to effect it. The idea that we fear to [use] that term is unfortunate. If I have an early case of [sc]iatica with the neuritis at the sacrosciatic notch, I do not hesitate to tell the patient that he will be well in ten days [and th]at he will be cured—not tentatively but actually cured for [one] who employs the proper method can rarely fail. To the [illegible] measures to which Dr. Solis Cohen referred we are [illegible] for the possibility of actually and promptly curing [these] conditions. The pendulum has not swung so far yet [as it] will swing. It is not going backward, it is still going [for]ward.

[illegible] therapeutics is going to be taught in [illegible] colleges [illegible] as it should be. It accom[plishes] results that can not be accomplished with drugs because it actually does the things to restore the tissues to a normal condition. We cannot think of disease under any name. The condition that we find is a symptom complex, it is not one disease. Each disease has its source in some preceding cause. It is the deteriorated condition which makes possible the inroad, and in the treatment of disease we must not consider alone the condition we find, but we must consider the condition that led up to it and meet the condition from the point of view of nutritional metabolism and restore the nutrition processes. We must treat the patient and not a disease.

HIGH-FREQUENCY DESICCATION, FULGURATION AND THERMORADIOTHERAPY

THEIR USES IN THERAPEUTICS *

WILLIAM L. CLARK, M.D.

PHILADELPHIA

Since the advent of high-frequency electric currents, various investigators have sought to determine their value in therapeutics. The literature on this subject is chaotic, and the opinions of different clinicians of equal standing are at variance. This is probably explained by the fact that there has been no standardization of apparatus or methods, and on account of the great variability of these currents as to strength and quality, hardly any two men who sought to compare results were employing exactly the same currents. To compare, then, the conclusions of men who specialize in other fields and who have not the time to devote to the intricacies of the newer electric methods would be misleading to those who seek exact data and unjust to the originators who have developed an exact technic and are skilled in the use of their own instruments. Of the later electric methods which seem to have a tangible value are high-frequency desiccation, fulguration and thermoradiotherapy.[1]

HIGH-FREQUENCY DESICCATION

Desiccation of living animal-tissue is an effect produced by the proper application of an accurately measured electric current of high tension. For superficial destruction no bare electrode comes in direct contact with the tissue, but the current from one pole is concentrated and thrown from a metal point through an air space to the tissue in the form of sparks of great frequency, the other pole being grounded. For deeper destruction the bipolar method is used, the metal point is brought in contact with the tissue and the large passive electrode is placed at some indifferent part of the body. A static machine of large output (2.5 to 3.5 milliampères) is used to produce the initial current, which is stepped up by a carefully measured capacity (0.00042 microfarads to each Leyden jar), and an accurately attuned resonator. The current from a coil or any magnetic device will not produce the desiccation effect on account of the interruptions in the primary, and as no discharge can be transmitted to the body until such interruption occurs, the current is delivered in a series of hot discharges which render the thermic degree inconstant and the impact against the tissue painfully severe. A steady flow is necessary as is procured from the static machine, but it must be of large output and subject to perfect control, or it will fall short of the desiccation point.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

[1] The following references which I am able to add on correcting the proof of this article will supplement this paper:

Clark, W. L.: The Destruction of Surface and Cavity Neoplasms by Desiccation. A Preliminary Report, New York Med. Jour., June 10, 1911. High-Frequency Desiccation: Its Uses and Limitations in Surgery and Dermatology. A Second Report, Month. Cycl. Pr. Med., August, 1912. Electric Desiccation as an Adjunct to Surgery with Special Reference to the Treatment of Cancer, Surg., Gynec. and Obst., August, 1912.

Desiccation should not be confused with fulguration, high-frequency cauterization or coagulation. The first devitalizes by drying the tissue, the second shocks and produces hyperemia, but does not destroy, and the third is essentially the same as an ordinary cautery, though perhaps deeper in effect. It is possible with this same apparatus, by attaching a controlling device, to produce all thermic degrees, ranging from hyperemia to cauterization. The desiccation-spark is not hot enough to carbonize, but only sufficient to cause rapid dehydration of the tissue rupturing the cell-capsule and converting the area treated into a dry mass. It has the power of penetrating into the tissue from a small fraction of an inch to an inch, or even more depending on the frequency, distance of the electrode from the body, time of exposure and density of the tissue. Not only can an area the size of a pin-point be desiccated without infringing on the normal tissue, but a growth of considerable size may be destroyed with one application, though this is not always desirable.

Desiccation destroys tissue without opening blood- or lymph-channels, and will act as a styptic when there is oozing of blood. It sterilizes all tissue on which it acts directly, as has been shown by careful experimentation with cultures taken before and after treatment. The desiccated tissue acts as a foreign body and a positive chemotaxis is promoted, which probably accounts for the rapid repair. The dry crust which forms acts as a natural dressing and separates in from three days to one week. Regeneration of skin or scar-tissue usually takes place underneath the crust. The method is not very painful if applied with correct technic. In supersensitive individuals a local anesthetic is employed, either by topical application, in the case of mucous membranes or ulcerated surfaces, or by infiltration when the area is covered with skin, although the latter is never practiced when there is a suspicion of malignancy, the ionic diffusion of cocain being preferable. In rare cases a general anesthetic is required.

CONDITIONS IN WHICH DESICCATION MAY BE USED

Warts and Moles.—These are usually destroyed by one application. A dry crust at once forms, which separates and falls off in from three days to one week, depending on the size of the area destroyed. Regeneration of skin takes place underneath the crust. The slightly red area gradually fades to normal color. There is no contracture as from a burn, and the cosmetic effect cannot be improved on by any other method. There is no doubt about the wisdom of removing these lesions for other than cosmetic reasons, as it is a well recognized fact that sometimes cancer has its starting point in an apparently innocent wart or mole.

Pigmentations, Vascular Nevi, Angiomas and Tattoo Marks.—The results in these conditions have been very satisfactory. It is advisable to complete the destruction at one sitting unless the lesions are very large, when a number of applications may be necessary. When these lesions are superficial new skin is formed, if deep, scar-tissue or a combination of skin and scar-tissue. The cosmetic effect depends on the depth of destruction. Care should be taken to destroy the tissue perfectly evenly and not too deeply, as there may be cupping, irregularity of surface, and if the spark is too hot, even a keloid. This may be avoided, however, by careful technic.

Chronic Varicose Ulcers.—The exuberant granulations are desiccated, after which ordinary methods, such as strapping and the silver nitrate stick is employed. Several cases which had resisted ordinary methods of treatment healed quite rapidly after the granulations were desiccated.

Acne.—An attenuated spark of the same type as above is used, but it is not carried so far as actual destruction. The primary effect is local anemia followed by an intense hyperemia. This method is very efficient when used in conjunction with proper constitutional treatment.

Growths in the Bladder.—By the use of a catheterizing cystoscope an insulated wire may be passed through the instrument, the bladder being inflated with boric acid solution or sterile water, and tumors may be readily destroyed by desiccation. When this current is passed through fluids, the intensity should be slightly increased and the wire brought in direct contact with the growth. This work may, however, be done by high-frequency cauterization and coagulation, as has been reported by various writers during the past year.

Rectum.—Using a special air inflation proctoscope through which an insulated wire is passed growths may be reached for a considerable distance up the rectum. By this method, papillomas, ulcerations, cancers (for palliative treatment) and hemorrhoids if for any reason operation is refused or contra-indicated may be treated.

Larynx.—In suitable cases tumors of the larynx may be destroyed by desiccation. The laryngoscope or ordinary laryngeal mirror is employed to expose the interior of the larnyx, and the current applied by [illegible] of an insulated wire, curved like a laryngeal appl

Eye.—Desiccation may be applied to the conjun in trachoma, dry granular conjunctivitis, epithel and to the cornea for granulating ulcerations in pterygium. There is no danger in working near the [illegible] as the control of the desiccation current is absolute.

Cancer.—Desiccation should be employed alone only in superficial epitheliomas. The destruction should be complete and carried beyond the diseased area. Blood and lymph-channels are sealed which would seem [illegible] render metastasis less likely. The results have been very satisfactory. In advanced epithelioma in which there is deep involvement of tissue but without glandular involvement, curettage or excision should be practiced first, followed immediately by desiccation. It [illegible] employed in such cases only when the wound is left open. When it is necessary to close the incision, as in cancer of the breast or the cervical glands, desiccation treatment is not to be recommended, because the debris could not find exit, even with drainage.

In cancer of the cervix, if inoperable, desiccation, [illegible] palliative measure probably has an advantage over the curet and cautery. It may be done without a general anesthetic, it destroys as effectively, sterilizes, deodorizes and acts as a styptic.

In cancer of the mucous membranes, such as [illegible] tongue, the buccal surfaces or the lip, unless seen early, desiccation should not be employed alone because [illegible] glands are usually involved, even though they are [illegible] palpable, for the diseased tissue must be removed [illegible] good result is to be expected with desiccation. The correct surgical procedure then is complete extirpation [illegible] the initial lesion and thorough excision of the [illegible] likely to be involved followed by desiccation if [illegible] wound is left open or by fulguration if sutured [illegible] then by the *x*-ray. In cancer that is absolutely inoperable, the *x*-ray should be applied. There is no de can be presented to an intelligent people than has been adduced on this point. Nothing further should be necessary by way of determining the action of a wide-awake nation. We should not require the stroke of a mallet on our collective figurative head. Neither should we encourage a further waste of time and money over methods and means that have once and again been tried and found wanting.

Vice Commissions.—I venture to suggest that these are at best a sorry attempt on the part of public officials, from the mayor of a city down, to shift a grave personal responsibility and duty on a long-suffering people. Two memorable vice commissions have made the necessary pioneer investigations and have blazed the way. The fact that they were necessary in their respective cities was a burning disgrace on the executive officers of those communities and on the male sex at large. None the less their work was well done, and their reports have startled all the world except the portions that are still asleep or that do not wish to be shaken out of ignorance and depravity. Cities differ very little with respect to their immoral and diseased sections. Invariably there is a close association between rotten politics and public prostitution. Without a thorough interdependence of these twin evils neither one could continue to exist, because the concealment and misrepresentation that are necessary to the life of the latter would become apparent to the clean portion of the public and action would be prompt and radical.

Every public prostitute and street-walker ought to be accurately known to the police officials. Her exit from any particular city is not a matter of difficulty when this end is desired. A definite notice that she is to cease plying her trade with the realization that the notice requires attention and observance, is all that is necessary. Nor need she return until the authorities desire or permit her reappearance. When all cities take this matter in hand there will be none that will harbor an acknowledged public woman or house of ill fame, nor one that will permit the presence of soliciting men and women — usually foci of contagious disease — on its streets.

There are indeed difficult phases and perplexing features of the prostitution question, but the matter of a full knowledge of the number and identity of the public houses and of their inmates and of the street-walkers, and ridding the cities of all these, are not among those difficulties. An official suggestion that they are constitutes an insult to the intelligence of the people, and amounts to a self conviction of unfitness for executive office. Moreover we may rest assured that a vice commission, from to-day on will from the time of its appointment until its dissolution meet with unnatural conditions in the city which it undertakes to investigate. My own city is at this instant heralding far and wide the fact that its vice commission, just appointed, is about to begin its labors and report on the condition of the town. Meanwhile during the three months since the first announcement that the mayor was waiting for a public demand for a vice commission all types of public prostitute, house inmate and street-walker, have been quietly and discreetly filtering out of Philadelphia into Atlantic City, Baltimore, Washington, even New York — black and white, male and female — all diseased and transmitting contagious disease and ready to return to their [illegible] shortly after the vice commission has rendered its report on an unnatural and abnormally peaceful [illegible]. In most instances a vice commission must necessarily employ improper and immoral means to obtain the evidence that will convict. When it does not, it assigns to an impossible task a police or detective force that is usually as well known to the public prostitute as the latter is to them. Perhaps as in the Philadelphia journals of yesterday and to-day the personnel, even the names of the officers assigned to detective duty are spread out to public, and of course to prostitute, view. Every item of the work of a vice commission can and should be accomplished more thoroughly, quietly and quickly by an efficient police department serving under a loyal mayor and director of public safety than by a group of citizens, however willing, but altogether ignorant of the first principles of such an investigation as is placed in their charge. The facts are in most instances already in hand, the moral courage to use them is alone lacking.

Official and Departmental Investigation and Control.—These are the forces that must be invoked and applied sanely, persistently and without ceasing. The moment they are relaxed human passion and carelessness of inevitable results will answer for the return of moral and physical conditions that are all too apparently serious to-day. In my opinion no city need harbor either the public prostitute or his or her contagious disease, provided it begin now and continue electing only such public officers as both subscribe to solemn oaths and fulfil their obligations to the public and to humanity.

The public should square itself with the public prostitute and acknowledge that in a large measure it is responsible for her sorry state. Social conditions are tolerated and encouraged by many of saintly speech and men that render it easy if not imperative that the public woman yield to the temptations of passion, vanity, and man's disregard of woman's honor and fair name. Starvation wages, the unattractiveness and poverty of the home, the opportunity of an easy income far larger than that obtainable in an honest or honorable livelihood, a total ignorance of the inevitably early disease and death that attend this calling, the dance-hall, the average theatrical show, the wiles of the procurer and cadet, the long working-hours, the temptation and finery of the department store, the lack of legitimate pleasure and relaxation are the conditions that help, at least, in recruiting the ranks of the 300,000 and more of America's public women, the average length of whose prostitute life is little over five years. The public owes the prostitute something of sympathy, protection, encouragement and of hospital care, at least when she emerges from her low level to an attempt at better things. Her head should not be pushed down again, she should not be refused employment, she should not be raided or imprisoned unless the same treatment is accorded the man. She ought to be taken into God's fresh air under institutional protection and directing care, under ideal conditions, until she can breathe deep and realize that there are human beings still on the earth who have also erred in one or another direction and who are extending to her a helping hand. She has not violated her oath of office as have the mayor and his subordinates who have perhaps allowed her to become morally and physically infected and as a prostitute to spread contagious disease, nor has she yielded in most instances altogether to her own desire. Grim social conditions have oftentimes pressed her down until her weak will has given way in an attempt to reach the only apparent means of relief and escape from intolerable servitude or impending starvation.

found between tuberculosis and venereal diseases from a strictly pathologic standpoint. The subject might develop interesting results on investigation.

DR. ELNORA C. FOLKMAR, Washington, D. C.: It seems to me that in dealing with this problem at present from the educational side we must aim to reach certain classes or groups. First of all, we must reach the parents of the coming generation and we must, as far as possible, reach the coming generation. Many parents are not fitted to teach the young concerning sex hygiene and have no time to prepare for the work. We must, therefore, get at the young people themselves. Another group of persons we must reach is the class of employers. We must demonstrate to them the amount of inefficiency that results from venereal disease. When we touch an economic problem we get support which will help us to carry education all along the line.

In the work in Washington, which was undertaken last year under the auspices of the Woman's Clinic and the Committee on Public Health Education Among Women of the American Medical Association, we did not attempt to press the subject home to any group. We announced that we were ready to give talks on sex hygiene whenever they were called for. One request was made, then another and another until at the end of the year, the last month of our educational campaign which covered other subjects than sex hygiene, almost all the requests were for lectures on sex hygiene. The requests came from mothers and teachers who are intensely interested in the problem "What will become of our sons and daughters?"

DR. ROBERT N. WILLSON, Philadelphia: I omitted an extended discussion of clandestine prostitution from my paper, since it is too large a subject. It is an important field and the largest number of venereal infections probably spring from it. Its consideration does not properly form a branch of public hygiene and is rather a social problem, one of education and sociology, and especially a question of home surroundings and home management. Whether we will ever handle it properly is a matter for Providence to decide. The clandestine prostitute is more dangerous even than the professed public woman, though there is no prostitute more than a few weeks at her trade without infection from one or both of the two social diseases. I think the method suggested of telling our young people, as in the Navy, that there is a possible prophylaxis, would be most unfortunate. I think it is morally unwise, unnecessary and an invitation in the wrong direction. Moreover there is no certain preventive.

I do not think you can frighten any boy into being moral or clean. In the University of Pennsylvania medical department we find the highest percentage of students who suffer from the social diseases, the next highest is obtained in the dental school, and the next in the veterinary. There is always a percentage of infections among practicing physicians, how high nobody knows. Education will not therefore do all. I believe there is a definite relation between tuberculosis and syphilis. I believe the negro race offers a case in point, syphilis existing there side by side with tuberculosis, and offering a ready soil for its development. I have never seen a negro recover from incipient tuberculosis and believe the mortality of the two diseases is in the negro race a composite one. Last of all I wish to say that I believe this is not a hopeless problem. I believe the fact that some of the younger medical men and women have within fifteen years seen the work progress from the stage in which all who undertook it were challenged as seeking advertisement to that in which there are demands received every day for teachers and for such instruction, this, I believe, is the best augury of [illegible] ess.

... in Yellowstone Park.—Physicians who have
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UROBILIN: ITS CLINICAL SIGNIFICANCE

PRELIMINARY REPORT*

RAY LYMAN WILBUR, M.D.
AND
THOMAS ADDIS, M.D.
SAN FRANCISCO

To follow the fate of hemoglobin within the body or to unravel the intricate skein of important functions carried on by the liver cell offers many difficult problems, but we are steadily progressing toward a better solution of them. Probably no substances have stimulated more interest and led to the production of more theories along these lines than urobilin and its mother substance urobilinogen. It now seems beyond reasonable question that these bodies are derived from hemoglobin either with or without preliminary formation of bile pigments.

While there are several ingenious theories of their production, each one with its fatal defects, the most generally accepted is that of Friedrich von Müller, which is that urobilin comes only from bile pigments subjected to bacterial decomposition within the intestinal tract, and he points in corroboration to the supposed absence of urobilin from the excretions of patients with complete obstruction of the common duct and to its appearance in such patients when they are fed normal pig's bile. Recently from von Müller's own laboratory Fischer and Meyer-Betz[1] have reported finding small quantities of urobilinogen (hemibilirubin) in concentrated extracts of urine from a patient with complete biliary obstruction, a finding which they ascribe to the elimination of small quantities of bile pigment directly through the jaundiced intestinal wall into the intestinal lumen.

Fischler,[2] from a series of experiments principally on dogs with biliary fistulas, has concluded that not only does a urobilinuria point to an inability on the part of the liver to perform its normal function of modifying the absorbed urobilin that comes to it from the portal circulation, but that the urobilin may be also a direct product of abnormal hepatic cell activity. Severe hemolysis is accompanied by any one of a series of conditions varying from the thickening of the bile from the increased pigment derived from the breaking down of the hemoglobin (pleiochromia) to a hemoglobinuria. With only moderate blood destruction increased urobilin or urobilinogen in the stools and urine are the only indications of a process which, when severe or acute, transcends the ability of the liver to reduce the hemoglobin and so permits its appearance as such directly in the urine. Thus it is probable that the best measure of erythrocytic destruction is to make parallel studies of the amounts of urobilin and urobilinogen in the feces and urine. At the same time much information can be obtained as to the functioning of the hepatic cells.

METHODS

The urobilin group are end products resulting from the breaking down of the pigment moiety of hemoglobin within the body. The different steps in the process are being gradually worked out, and especially within th last few years great advances have been made in the chemistry of the decomposition products of hemoglobin pigment. Structural formulas have been advanced for some of them, not, it is true, with any claim to absolute accuracy, but sufficient to serve as working hypotheses on which to base further investigation. In general it has been well established that the essential feature of all this group of substances is the pyrrol nucleus.

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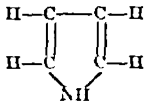
* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Laboratory of Medicine, Medical Department of Stanford University.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelope.

1. Fischer and Meyer-Betz: [illegible] 1912, [illegible]

2. Fischler: Dissertation, [illegible]



Hemoglobin pigment contains four of such nuclei; bilirubin, the form into which the hemoglobin pigment is converted in the liver, probably also has four, whereas it seems not unlikely that urobilinogen contains two and the urobilins perhaps only one. The breaking down process, therefore, appears to consist in a separation from each other of combined pyrrol nuclei. It is important to bear in mind that the term urobilin covers a whole group of substances which have in common the pyrrol nucleus, but differ in the character of the side chains attached to this nucleus. Numerous pyrrol derivatives have been synthetically prepared which give the two characteristic reactions of urobilin, the fluorescence with zinc salts, and the spectroscopic absorption band between b and F. These are therefore group reactions and not specific for any one substance. The methods based on the spectroscopic characteristics of urobilinogen and urobilin appeared from the first to hold out greater promise of accuracy than any others. In acid solution urobilinogen in the presence of paradimethylaminobenzaldehyd shows a sharp band between D and E, that is, between yellow and green, while urobilin in acid solution gives the band between b and F, that is, between the green and the blue. The basis of the method used by us is the determination of the number of dilutions required to cause the disappearance of the spectroscopic absorption bands of urobilinogen and urobilin. Its details will be taken up later in a more comprehensive paper.

CASES

While a series of cases representative of the following types have been studied, time prevents recital of more than a few.

- Blood Destruction
  - 1. Within the vessels
    - A. Pernicious anemia
    - B. Chlorosis
  - 2. Outside the vessels
    - A. Large pulmonary infarct
    - B. Hemorrhagic ascites
- Hepatic Cases
  - 1. Cirrhosis
  - 2. Cancer
    - A. With complete obstruction
    - B. With incomplete obstruction.
    - C. Without obstruction
  - 3. Biliary Fistulas (gall-stones)
- Cardiac Insufficiency
  - 1. Chronic insufficiency
  - 2. Acute insufficiency followed by recovery
- Renal Insufficiency
- Pulmonary Disease (pneumonia, etc.)
- Gastro-Intestinal Disease (gastric carcinoma, etc.)

The following cases are chosen from among a number as being illustrative not so much to show the present value of these estimations as to emphasize their possible clinical importance. Until more definite knowledge is obtained as to the source or sources of origin of urobilin and the factors which influence its excretion, its clinical significance must remain uncertain and problematic.

CASE 1.—*Liver Disease. Complete Closure of the Bile Ducts, Carcinoma.*—The patient, F. W., was 55 years old. Four months previous to admission on March 18, jaundice unaccompanied by any symptoms had gradually set in. The skin was a deep olive color. The liver was greatly enlarged. No irregularities could be detected. The gall bladder was not palpable. Wassermann positive. Ascites was first found April 20. An exploratory operation was performed April 24. The patient died April 27.

At post mortem a large carcinomatous mass was found within the liver.[3] The hepatic ducts were completely occluded. The gall bladder was small and contained mucus, no more bile stained than the mucus in the respiratory and intestinal tracts. The cystic and common ducts were patent. The intestines were almost empty, but some contents were collected at different points and after diluting with acid alcohol until as far as possible an equal consistency was obtained in all the specimens, the urobilin was extracted. The following figures were obtained: stomach, 0; duodenum, 0; jejunum, 0; midway in small intestine, 4; lowest part of ileum, 4; cecum, 16; transverse colon, 12; descending colon, 0.

The blood and tissues gave negative results. In fluid from the peritoneal cavity a reading of 4 was obtained from 10 c.c. In the fluid removed from the necrotic center of the carcinoma above the blocked bile ducts a reading of 4 was found in 10 c.c.

Chart 1 shows that no urobilin was ever found in the urine. Small amounts were found occasionally in the stools. It should be noted here that in this case the urobilinogen was not taken into account. It has been shown by Von Moraczewski[4] that in acholic stools the amount of indol is considerably increased. Now indol in acid alcoholic solution forms a pigment with Ehrlich's reagent which has a spectroscopic absorption band different from that of urobilinogen indeed, but yet so near it as to make confusion possible. The amount of indol in any given case is small and in non-acholic stools could not make any appreciable difference, but in this case in order to avoid any possible error we left out the urobilinogen estimations altogether. By leaving the stools standing for from twenty-four to forty-eight hours in a dim light most of the urobilinogen was turned into urobilin. Still it is probable that the actual amount of urobilin was greater than our figures represent. The question arises then as to the source of this urobilin. No bilirubin was entering the intestine from the liver and it does not seem likely that the traces excreted through the intestinal wall could be responsible, since after giving 5 gm. of dried bile no urobilin was found. Yet if the theory of the intestinal formation of urobilin is accepted no other explanation is possible.

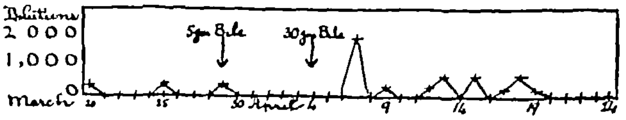


Chart 1.—F. W. Complete closure of gall ducts; carcinoma. In this and the following charts urobilin in the stools is indicated by a line with crosses; urobilin in the urine by a line with heavy dots; urobilin in bile by a line with circles.

In this case von Müller's experiment was repeated. He found that in a case of complete duct closure urobilin previously absent from both urine and stools, appeared after bile was given by the mouth On this is founded the theory of the exclusively enterogenous formation of urobilin In our case, as can be seen from Chart 1, 5 gm. of dried bile, which was found to be free from urobilin, produced no effect Six days later 30 gm of inspissated bile was given Three hours later the patient complained of nausea and epigastric pain Shortly afterward he began to vomit small amounts of fluid containing altered blood but no bile At this time he was in a condition of collapse from which he did not completely recover for forty-eight hours There was no diarrhea In spite of this large dose of bile no urobilin was found in the urine although a moderate amount of urobilin appeared in the stools three days later

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[3] The carcinoma had liquefied in the center. When the cavity was opened numerous bright red particles were found adhering to the wall. Some of these were collected and on examination proved to be the red form of mercuric sulphid. Shortly before death the patient had had energetic mercurial treatment by inunction.

[4] Von Moraczewski: Arch. f. Verdauungskr., 1908, xiv, 375.

CASE 2.—*Blood Destruction Subacute Bacterial Endocarditis* —The patient, H D, aged 33, entered the hospital, April 5 1912, with symptoms of cardiac insufficiency and edema of the legs of ten days' duration He gave a history of ill health for two months with occasional fever and night sweats Signs of aortic and mitral regurgitation were found The cardiac symptoms and the edema disappeared after a few days in bed but the patient remained weak and obviously ill Every evening there was a marked rise of temperature April 19, the red cells numbered 3 800 000, with 58 per cent hemoglobin May 14 the red cells were 3 000 000 with 56 per cent hemoglobin Diagnosis of subacute bacterial endocarditis was made

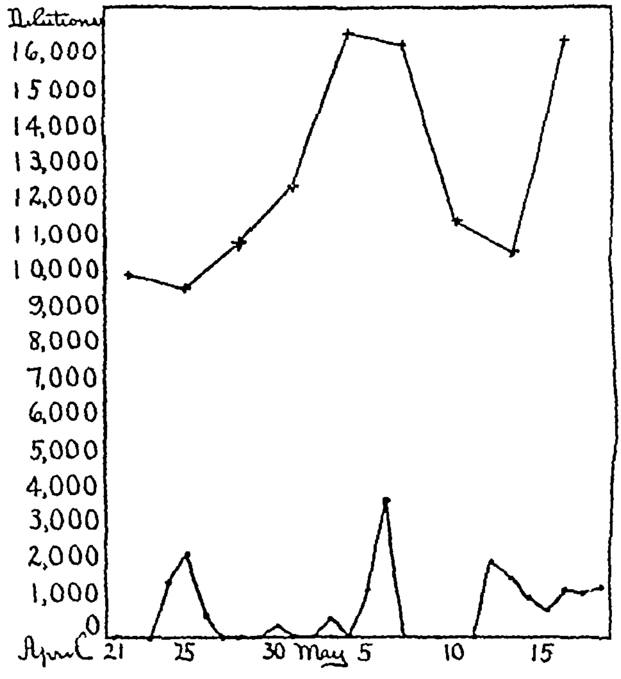

Chart 2.—H D Subacute bacterial endocarditis

Chart 2 represents urobilin elimination in stools and urine The fecal excretion is represented as averages of three-day periods The amount of urobilin is two or three times as great as normal Yet the amount of hemoglobin broken down balances the amount built up, for there is no change in the percentage of hemoglobin Nevertheless the hemoglobin metabolism is not normal for the large urobilin excretion indicates that much more hemoglobin is disintegrating than in conditions of health It will be noted that there is no relation between the amount of urobilin in the urine and in the stools, which indicates that other factors besides the amount of urobilin in the stools must influence the urinary excretion of urobilin

CASE 3—*Gall Stone Dyspepsia*—E W s case was one of long standing There was no trace of icterus and none had been noticed for fifteen years At the operation May 4, the gall bladder was found to be much thickened A stone was present in the common duct The gall bladder was drained After the operation the stools became clay colored The manipulations had evidently caused a closure of the duct

On Chart 3 it will be seen that there is little urobilin in the stools, no more than was found in the case of complete duct closure May 16 and thereafter a moderate amount was found, indicating that some bile was entering the intestine The most interesting point about the chart however is the large amount of urobilin present in the bile at the very time when little was formed in the intestine As the amount of urobilin in the stools increased, the quantity in the bile decreased This urobilin in the bile cannot have been derived from the intestine It is possible, though improbable, that it was formed in the gall bladder, but this explanation does not apply to the urobilin in urine This, then is another instance of the inability of the theory of the enterogenous formation of urobilin to explain the fact

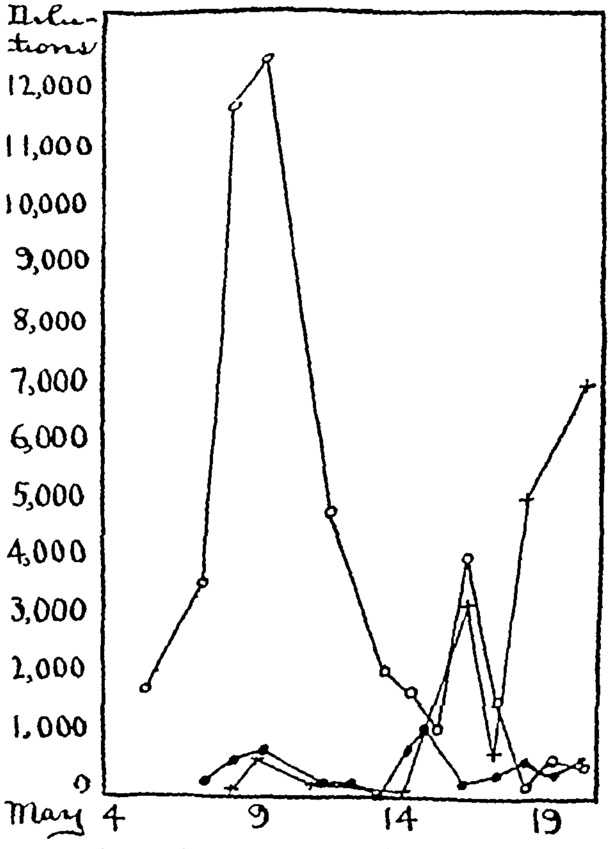

Chart 3.—E W Acute closure of common duct

CASE 4—*Failure of Cardiac Compensation*—The patient H B, presented a case of aortic incompetency with broken compensation He entered the hospital April 11 with general anasarca The liver was enlarged and there was tenderness in that region During the first few days his condition became better the size of the liver diminished and the tenderness disappeared From that point however, improvement ceased

Chart 4 shows an amount of urobilin above the normal though not so high as in the case of infective endocarditis. There was a rapid fall in the amount of urobilin in the urine after admission without any corresponding decrease in the urobilin in the stools. This decrease in urinary urobilin may have been associated with the improvement in the circulation in the liver which occurred at the same time.

Case 5.—*Migraine.*—The patient, M. B., had a typical case of migraine. A small amount of urobilin was found in the urine during one attack. Some time afterward when the patient was free from headache none was found. During a subsequent slight headache (not of the migraine type) the urine was again negative.

Case 6.—*Blood Destruction. Pernicious Anemia.*—The patient, Dr. B., aged 50, had a history and symptoms suggestive of pernicious anemia. Blood films taken shortly before death showed an increase in the average size of the red blood cells, marked poikilocytosis and anisocytosis with numerous megaloblasts. During the fortnight preceding death three specimens of urine were examined, and all showed unusually large amounts of urobilin. With the average excretion of urine of 1 000 c.c. the dilution values would have been 7,200, 10,800 and 5,600.

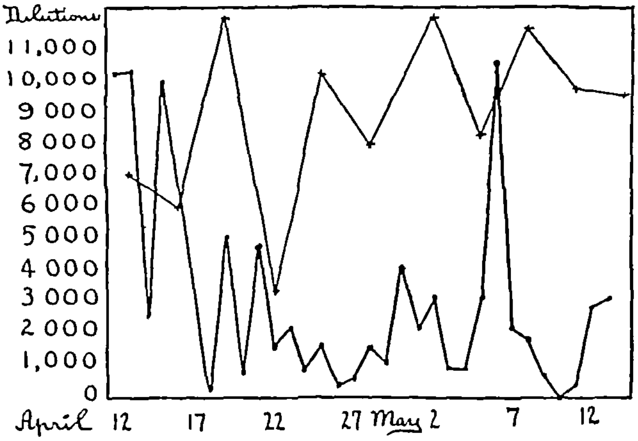

Chart 4.—H. B. Failure of cardiac compensation.

At the post mortem, besides the usual findings in pernicious anemia, an extensive dilatation of the colon which contained quantities of solid feces and an increase in the connective tissue in the liver were found. Some black sticky bile was obtained from the gall bladder. This bile contained urobilin far in excess of any amount previously found by us. From 10 c.c. urobilin was extracted with a dilution value of 2 940. Assuming the amount of bile excreted in twenty four hours to be 600 c.c. (Zoja) this would represent a dilution value of 1 746 000 for the twenty four hours. Ten grams of the contents of the intestinal canal were removed at various points and the following dilution values obtained: duodenum 1 000, jejunum 1 800, ascending colon 1,649, and sigmoid 1 000. No urobilin was detected in the blood or in any of the tissues.

SUMMARY OF CLINICAL CONDITIONS

With the above described cases in mind, a review of the present status of information in regard to those clinical conditions accompanied most commonly by the elimination of abnormal amounts of urobilin and urobilinogen seems worthy of presentation.

Pernicious Anemia.—While simple anemia may or may not be accompanied by a urobilinuria, increased quantities of urobilin in the stools and urine in pernicious anemia have been recorded by a number of observers (Neuberg,[5] Scheel,[6] Munzer and Bloch,[7] Hildebrandt,[8] Gerhardt,[9] and others).

Numerous and careful studies of the relation of urobilin in pernicious anemia should throw considerable light on the processes by which the red blood-cells are destroyed by the toxic factors evidently present in this disease.

Malaria.—The breaking up of the red blood-corpuscle and hemoglobin is such a characteristic factor in malaria that we would expect increased quantities of urobilin to appear in the excretions at or near the time of malarial paroxysms. Simpson[14] found an enormous increase before and subsequent to the fever. He considers the urobilin in the urine as only an indicator of the absorptive capacity of the intestinal wall and as useless in itself to determine the amount of hemoglobin-metabolism, but that combined examinations of the stools and urine give valuable results, the total output of the urobilin corresponding closely to the amount of hemoglobin destroyed.

Diseases of the Liver, Especially Obstruction of the Gall-Ducts and Cirrhosis.—The description of the improbable "urobilin icterus" by Gerhardt, together with the changes discovered in the amount of urobilin in the urine of patients suffering with various hepatic disorders, has long excited the interest of clinicians, but in spite of the large amount of investigation done there is at present no uniform understanding of the relation of urobilin to diseases of the liver.

Obstructive lesions, particularly those involving the common duct, have been of the most interest because of Friedrich von Muller's experiments indicating that urobilin originates only from bilirubin reduced in the bowel and Neubauer's observation on the absence of the aldehyd test in the urine of cases in which the bile fails to pass into the intestine along the common duct. Fromholdt[21] believes that when bile is given in a case of common duct closure (Muller's experiment) it acts as an irritant to the liver and so leads to urobilinuria. Fischler found that dogs permitted to lick up their own bile from a biliary fistula, which had previously prevented the presence of bile within the intestine, became ill and had an increased susceptibility to liver poisons (amyl alcohol, phosphorus, etc.) and presented later a marked overgrowth of connective tissue within the organ. Increasing evidence that urobilin can originate outside of the intestine is accumulating (Gerhardt, Tsuchiya, Troisier, Guilhaum and Troisier, Beck), but nevertheless valuable information can be obtained in cases of jaundice with obstruction from observations as to its presence or absence in the urine and stools.

In general we may, without entering into the various theories of the origin and excretion of urobilin and urobilinogen, state that an increased elimination of these substances takes place in parenchymatous liver lesions (unless too acute and severe) and that there is a marked reduction or absence of these substances in complete obstruction of the common duct, so that urobilin estimations become of much value in diagnosis and prognosis of many hepatic diseases.

Pneumonia.—The striking assertion of Zoja[26] that blood regeneration must go on ten times faster than normal in some cases of pneumonia if the blood is to retain its regular amount of hemoglobin and its usual number of red blood-cells is based on estimations of urobilin in the urine and stools. The increase in urobilin is thus considered by him a measure of blood destruction, and taken with the percentage of hemoglobin and red blood counts, a measure as well of the work done by the hemopoietic organs. Many investigators have reported the finding of urobilin in pneumonia. Moller[27] with Bifli's method[28] found urobilin in the serum of two pneumonia patients. Out of sixty patients, Conner and Roper[29] found urobilin in the blood, but none in the affected lung tissue, of ten who were in the last stages, nor were they able to show that it came from bacterial action on hemoglobin.

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[5] Neuberg: Der Harn, Berlin, 1911, Part i, 910; Part ii, 1[illegible].
[6] Scheel: Ztschr. f. klin. Med., 1911, lxxiv, 1[illegible].
[7] Münzer and Bloch: Arch. f. Verdauungskr., 1911, xvii, [illegible].
[8] Hildebrandt: Ztschr. f. klin. Med., 1906, lix, [illegible].
[9] Gerhardt: Dissertation, Berlin, 18[illegible].
[14] Simpson: Biochem. Jour., 1911, v, [illegible]78.
[21] Fromholdt: Ztschr. f. exper. Path. u. Therap., 1911, ix, [illegible].
[26] Zoja: Fol. Haemat., 1910, x, [illegible].

Prognostic Value in Cardiac Lesions.—Case 4 (that of H. B.) is typical and shows clearly the value of urobilinuria in estimating the amount of stasis in the liver in failure of cardiac compensation. With improvement and consequent decrease in the size and tenderness of the liver there was a rapid decrease in the amount of urobilin in the urine without a corresponding fall in the fecal excretion. A recurring period of decompensation was inaugurated by a premonitory increase in the urobilinuria. In general, liver stasis is accompanied by a marked urobilinuria. Its estimation serves as a guide by which one may follow the beneficial results of administered digitalis. Cases with cyanosis and with hypercythemia, but without marked liver engorgement, present no increase in the urobilin in urine. Fischler considers a urobilinuria which persists after compensation has been regained as evidence of a pathologic condition of the liver.

Migraine.—The increased urobilinuria found in Case 5 (that of M. B.) at the time of migraine attacks is suggestive, especially when considered in the light of the very effective treatment of Rachford,[34] which aims to prevent the periodic headaches by the persistent use of drugs thought to stimulate elimination from the liver. Too few cases have been observed to more than indicate the desirability of further investigation.

CONCLUSIONS

1. Simultaneous estimation of urobilin and urobilinogen in the stools and urine, after certain allowances are made for the state of the liver and intestinal peristalsis, permits valuable approximations to be drawn as to the amount of hemoglobin broken down within the body.

2. Urobilinuria may be used as an early indicator of *the failure of the liver to functionate normally in alcoholic individuals with enlarged and tender livers.*

3. While in a jaundiced individual the persistent failure to obtain positive tests for urobilinogen in the urine by the present methods points usually to absolute closure of the duct, there seems to be evidence against the correctness of the commonly accepted view that the only origin of urobilin is from the reduction of bilirubin in the intestine, this evidence consisting in the presence of not inconsiderable amounts of urobilin in the stools of patients in whom very little bilirubin (closure of the common bile duct) or no bilirubin (closure of the common duct and a biliary fistula) reaches the intestine.

4. The urobilinuria and urobilinemia of pneumonia deserve more study as the occurrence of urobilin as such in the blood is apparently, by the present methods, found during life only in this disease, and it may indicate that peculiar relations exist between urobilin and the factors accompanying cyanosis.

5. The discovery of a persistent urobilinuria should incite a careful study for all possible factors leading either to blood destruction or to parenchymatous or obstructive hepatic disorders.

MY EXPERIENCE WITH DIABETIC PATIENTS LIVING TEN OR MORE YEARS*

ELLIOTT P. JOSLIN, M.D.
BOSTON

It was a gratifying surprise to me to discover that sixty-seven of my patients with diabetes had lived, or were still alive, at least ten years after the onset of the disease. The discouragements which beset the life of the diabetic patient and his physician are so great that the brighter aspects of the disease should constantly be brought into the foreground. Furthermore, lessons are always to be learned from a study of the extreme aspects of any disease. Therefore it appears desirable to me to report on my cases of diabetes of long, rather than of short, duration.

Eleven per cent. of all the cases of diabetes which I have seen in private practice have had a duration of ten or more years, but the figures are far more favorable than this, because out of these 505 cases, I have, at the present writing, been able to trace the outcome in only 394 cases. The proportion of cases of ten years' duration of which I know the present state, therefore, rises to 17 per cent., and yet this figure is too low, because a large number of the living patients have acquired their diabetes less than ten years ago. If I subtract this number, which is 141, from the number of diabetics of which I have discovered the outcome there remain 253 cases representing the number which are actually eligible for statistics. Of this number, sixty-seven patients having lived ten or more years with the disease we can say that 26 per cent., i. e., one in every four, may look forward to a duration of life of at least ten years from the onset of their malady.

The usual preponderance of diabetes in the male sex prevails. Of my sixty-seven patients forty were males.

The onset of the disease was at 16 years of age in one patient, and 69 in another. Contrary to expectation nearly one-third of the patients acquired the disease under 40, and only five after the age of 60. The remainder were equally divided between the fifth and sixth decades.

TABLE 1.—TABULATION OF ONSET OF DIABETES IN SIXTY-SEVEN PATIENTS ACCORDING TO AGE

Age at Onset Years	Number of Cases
11-20	3
21-30	[illegible]
31-40	12
41-50	21
51-60	21
61-70	[illegible]

It is thus apparent at the outset that these cases of long duration were not simply due to the mild diabetes of elderly people.

The duration of life in one patient was thirty-five years, and in five others twenty years or more. Thirty-nine of my patients are still living, and of this number fourteen have had the disease at least fifteen years.

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[27] Moller: Berl. klin. Wchnschr., 1909, xlvi, 2305.
[28] Bifli: Fol. Haemat., 1908, iii, 181; 1907, iv, 533.
[29] Conner and Roper: Arch. Int. Med., 1908, ii, 532.
[34] Rachford: Med. News, 1903, lxxxiii, 630.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Practically all of the patients were of American extraction Four were Hebrews and one was an Irishman

Syphilis was known to me to exist in only five of the cases I am sure, however, that it was present in a much larger proportion All will agree that statistics on syphilis in diabetes are to-day of no value Within a few years syphilis may reach a position of great importance in diabetes I would call attention to the case reported by Umber, in which the diabetes was most favorably influenced by salvarsan All should scan each new case of diabetes and its possible connection with syphilis with great care No case of diabetes has come under my personal observation which has been favorably influenced by antisyphilitic treatment I mean, however, to be most open-minded on the subject

The severity of the disease is attested by the presence of acidosis in thirty-five of the cases, and also by the fact that of the twenty-eight patients who died, twelve died in coma On the other hand, it is true that, contrary to the rule that the severity of the disease increases with its duration, a certain number of the cases became less severe as time advanced Thus, fifteen were free from sugar before death occurred Some of these cases too were of considerable severity and, as a rule, they were of long duration So far as I am aware acidosis was absent in all but one of these cases Of course, sugar may have persisted in an increased quantity in the blood, and yet been absent from the urine But because of the absence of acidosis I am inclined to believe that the sugar in the blood did not reach, toward the end of the disease, a height above the normal level

The cause of death was, as above stated, diabetic coma in twelve cases In only eight cases was death directly attributable to arteriosclerotic conditions Pulmonary tuberculosis was the cause in one patient Contrast this with the probable statistics of twenty years ago It is interesting that the patient who finally died with pulmonary tuberculosis represented one of the severest cases in the group, and yet toward the end of life the diabetes decreased in severity, yielding preference to the tuberculosis I have several other examples of this sort Pneumonia occurred three times, cancer once, and pernicious anemia once as causes of death The cause of death was not ascertained in two cases

The classification of the cases is extremely difficult Eight cases were pure diabetes and can be so grouped in the Naunyn sense Fifty-two can be similarly grouped if we would include in this number thirty-two patients who were also obese and nine at the age of 59 or over Five cases were of extremely mild type and might be grouped under glycosuria though, better, I think as mild diabetes One case was of a functional neurotic character and the remainder could not be classified

How did it happen that these sixty-seven diabetics lived so long?

1 Obesity surpasses all other factors as an explanation Twenty-six weighed over 200 pounds at some time or other of their lives and thirty-five weighed at least 180 pounds If we study the duration of life of the distinctively fat patients we find it to be fourteen years for the nine who died, and thirteen years for the seventeen who are still alive In contrast to this, the duration of life for the fifteen patients of moderate weight now dead was thirteen years, and for the fourteen of moderate weight yet alive also thirteen years The type of diabetes among the fat patients was mild Presumably these same individuals would not have developed diabetes if they had maintained normal weight Modern medicine demands the prevention of obesity as prophylaxis against diabetes I realize that another interpretation could be put on these figures, namely, that if there is a disposition to acquire diabetes, one had best be fat, but I believe most will agree that the figures can be better utilized as reason for prophylactic treatment against the onset of the disease rather than as prophylactic treatment against death after the disease has begun

The loss of weight ranged from 109 pounds in one individual to a gain in weight of 1 pound in another The usual loss of weight was 40 to 50 pounds

TABLE 2—TABULATION OF LOSS OF WEIGHT IN SIXTY SEVEN DIABETICS

Loss of Weight Pounds	Number of Cases
0 10	7
11 20	4
21 30	13
31 40	9
41 50	9
51 60	6
61 70	2
71 80	1
81 90	0
91 100	0
101 110	1
Gain in weight	1
Unknown	14

2 Three qualities of temperament constitute a second reason why these patients lived so long These qualities were common sense, courage and cheerfulness These patients were not led into fads of treatment either by physicians or by the advertisements of patent medicines They were practically all individuals of strong character who, realizing their disease, made up their minds to fight it through to the very end They were not cowards A cowardly diabetic has a poor prospect for life Cheerfulness was more than noteworthy as a characteristic of these people It was well-nigh universal

3 There is hope in the fact that fifty-five of the sixty-seven patients received distinctly better treatment than the average diabetic patient Eleven of the patients received treatment from men who stand exceptionally high in the profession It is true that over and over again patients deny that they carry out careful treatment, but I think it is seldom, though it is occasionally so, that one meets a patient with diabetes of long standing who has not consciously or unconsciously followed rational methods of care

4 Heredity plays a considerable rôle among the group Sixteen, or 25 per cent, of the sixty-three patients whose cases are available for statistics in this regard had parents, brothers or sisters, cousins or aunts with the disease This percentage is probably somewhat higher than the percentage of heredity in diabetes, but not really so much greater than is often the case Undoubtedly, heredity will play a greater rôle in diabetes as time goes on, but it may not attain greater significance Accuracy of vital statistics and better physicians enter into this condition Two cases in the heredity group are of especial significance because the disease developed at the ages of 15 and 17, respectively, in fact, these were the youngest patients in my group Another of my patients with marked heredity developed diabetes at the age of 13 but lived not quite ten years

All cases which have come to my attention of youthful patients with diabetes living for such long periods of time have been hereditary The case of Schmitz, quoted by Naunyn, was hereditary Naunyn's own famous cases, Nos 124, 173 and 32 were all hereditary cases, and he refers on pages 96 and 97 of the second edition of his book on diabetes to other cases with long duration in which I find that heredity was manifest

Von Noorden calls attention to the fact that heredity may be a favorable factor for the duration of diabetes, though occasionally unfavorable if the type in the progenitors has been especially severe

5 The diabetes was extremely mild in five of my cases, and the quantity of sugar in the urine in these five cases was not far from 1 per cent In one of these cases, acidosis was present following an operation for appendicitis In several of the cases a small quantity of sugar was present in the urine presumably for some time before the disease broke out in full force I suspect that many more such cases will be found in the future

6 The favorable outcome in a considerable percentage of the cases can be attributed to the early detection of the disease Many of the patients were physicians and several learned of the diabetes through life-insurance Approximately one-fourth of the patients discovered their diabetes in this manner, and thus presumably began treatment early The early detection of the disease, therefore, is one of the best methods for obtaining favorable results for treatment

Naunyn especially urges the importance and the good results of early treatment The time is probably not far distant, if not already here, when the question will be asked of the diabetic "How long did the diabetes exist before it was discovered and who was your physician?" We are familiar with the same questions in tuberculosis Who would have *thought ten years, or even five years ago, that it might reflect on a physician if one of his patients* developed typhoid fever? *In ten* years to come we may be blamed for *the development* of some cases of diabetes

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ABSTRACT OF DISCUSSION

DR THEODORE C JANEWAY, New York Success in the treatment of diabetes mellitus depends entirely on minute attention to detail and on the ability of the physician to persuade the patient to undergo the necessary hardships which, however, should be made as little irksome as possible There must of necessity be cooperation on the part of the patient, unless you can convince your patient of your ability to help him, you will not get this needed cooperation

The treatment of the ordinary cases of diabetes is within the powers of any physician who is willing to give a little time and study to the underlying principles The management of severe cases of diabetes requires special experience Dr Joslin has emphasized the real value of profiting by what we have learned from experience, carefully studied, in the hopefulness that comes from known power to help our patients The same principle holds good, for instance in the use of digitalis in heart disease, the man who always uses it carefully, and only when it is indicated can accomplish results and avoid many failures In his future use of digitalis then he will show a confidence which goes a great way in promoting a *good effect on the patient This holds good over the whole* domain of practical *medicine*

If we have learned to carry these diabetic patients along and improve at least one quarter of all of them so that they can live ten years or more I think that we have been given a valuable lesson There is no one in the country who is in a better position than Dr Joslin to give us this lesson with the statistics that he has and the thoroughness with which he has gathered them My personal experience with these cases of diabetes has not been as great as his I think rather more of the long lived ones that I have records of have shown obesity Dr Joslin's patients however have been chiefly among the American born population more of mine among the Hebrews One patient illustrates a phase of the question occasionally seen, an elderly obese individual, now nearly 80 years of age diabetic for about twenty years who has disregarded most of the rules laid down for him but is still alive He has survived an appendix abscess since 70 For the last six years his diabetes has been moderately severe Too much should not be said about such cases for the disregard of proper dietetic *measures* usually produces very definite effects in hastening the progress of diabetes Such a case shows however that the elderly obese diabetic may live long even without good treatment

DR. JOHN A LICHTY Pittsburgh What was the percentage of these patients that Dr Joslin has reported to the number of patients diabetic whom he has seen? An important point which I think should be emphasized is the effect of the acute infections on these cases Death in almost all my cases was *due to some* acute infection rather than because of the usually dreaded diabetic coma such for instance as middle ear disease tonsillitis pneumonia pulmonary tuberculosis and other diseases which might be mentioned

In looking over my case records a few weeks ago in preparation for a lecture to the students on the subject of diabetes mellitus I found a point that impressed itself on me very much and one that Dr Joslin has brought out this morning *that these patients* live longer than was ordinarily believed and longer than the *text books* usually tell One case in particular illustrates the hopefulness which should be entertained in regard to these cases This patient was a young man in the dangerous age between 20 and 30 whose case was classed as acute, with a bad prognosis He was eliminating 20 ounces of sugar during twenty four hours This man was gradually placed on a carbohydrate free diet and the amount of sugar fell gradually to three fourths of an ounce per day After *two days' rest* in bed the sugar entirely disappeared and he slowly gained in weight This case looks to be very hopeful It illustrates what rest in addition to proper dietetics will do

DR. G W McCASKEY Ft. Wayne Ind I am strongly inclined to think that we have a tendency to take an altogether too hopeless view of the progressive tendencies of diabetes mellitus and am firmly convinced that an intelligent and careful management of these patients will tend very largely to increase the number of those who live many years and who *make* under favorable conditions what is a substantial recovery While we do not know *much of the real* pathology of the disease, we may say that it is a more or less complete breakdown in the glycolytic function of the body This function is very complex Certainly it is dependent in part on the internal secretion of the pancreas and probably on the glycolytic ferment discovered by Cohnheim in the muscle juices Other factors still may be operative although at present unknown

What we *should aim to do* is to study this function in so far as its limitations are concerned and endeavor *if possible* to broaden them I believe that this can be done to a great extent in a considerable number of cases The first thing to do is to determine whether the patient with diabetes will continue to have glycosuria on a starch and sugar free diet If he does the case is essentially unfavorable and the patient cannot be expected to improve very much or perhaps even survive very long If the sugar in the urine *disappear on the* withdrawal of carbohydrate then intelligent supervision of the patient's dietary may accomplish very much He cannot of course be kept aglycosuric by completely withholding carbohydrates indefinitely as this is not practical but by reducing the quantity as much as possible and at frequent intervals entirely withdrawing them and giving this complex function rest we may improve its capacity and *widen its limitations* and in a certain group of cases the patient may ultimately become able to assimilate and metabolize an increasing quantity of starch without the production of glycosuria A full recognition of these facts will enable us to [illegible] to some of these patients who [illegible] steadily becoming [illegible] health and vigor [illegible] In [illegible] it is not [illegible] at all [illegible] the patient [illegible] ties that he ca[illegible] time to time [illegible] dietetic man[illegible]

DR J L MILLER, Chicago I would like to report two interesting cases A woman had a glycosuria which had existed for a number of years, she developed an urticaria of very severe type which persisted for three or four months Without any change in her diet or any special medication, the glycosuria disappeared. After the disappearance of the urticaria, however, the glycosuria returned.

The second patient was a woman, who passed 50 gm of sugar a day She was on a rigid diet She had very severe uterine hemorrhages, and, as a result, was markedly anemic. A hysterectomy was performed It was found that a carcinoma had developed on an old fibroid tumor Several months later the patient returned and it was found that she was entirely free of sugar To day she is taking practically an unlimited amount of starch and is doing very well

DR. LOUIS G HEYN, Cincinnati At von Noorden's clinic and at different sanatoriums to which I had access in Vienna, I was impressed with the control the physician had over his patient and the good results to the diabetic patient accruing from a hospital residence Great stress is laid on the patient's residence in a hospital or sanatorium, an important step in gaining control of the patient Of greater importance perhaps than the control of the patient is the facility which close observation affords of determining the carbohydrate tolerance Estimations may thus be carried over a definite length of time daily What also seemed important to me was the manner in which physicians impressed their patients with the seriousness of their condition and the fearlessness which the physician displayed in handling the situation For instance, the presence of acetone and acid bodies was usually disregarded, unless the acetone estimate was over 5 gm. daily Let me say again that I consider of paramount importance the residence of diabetic patients in hospitals or sanatoriums Most of them will not be required to remain longer than a few weeks

DR. ELLIOTT P JOSLIN, Boston One occasionally meets a patient who states that he has not had careful treatment, yet such a patient may live for a long period of time I investigate such cases and usually find that such patients take much butter and cream and other fatty food and also change the character of their work The head of a large life insurance office told me that he had had diabetes for twenty years, and that he had never been treated for it In reality, however, the diagnosis was made early and the patient being intelligent had followed a most careful diet all his life I can report a case similar to that described by Dr Miller The patient had a very severe attack of diabetes, the glycosuria occurred in connection with a fibroid tumor of the uterus, when the fibroid was removed the glycosuria disappeared I think that residence in a hospital should be but a short time three weeks the maximum When sent out these individuals will be more willing to return for another period of treatment They should be allowed to go about town and enjoy pleasures outside the institution Rest for a week however, often results in great benefit to them The report of the case of urticaria occurring in the case of diabetes was extremely interesting especially as it might throw some light on the etiology or on the treatment of this disease There is no doubt also but that cases of diabetes in which tuberculosis is acquired require careful study If tuberculosis develops in a diabetic patient the diabetes usually recedes just why I do not know

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Laboratory Typhoid Diagnosis.—Blood cultures make possible an early and positive diagnosis The typhoid bacilli can be recovered from the blood in a large percentage of cases as early as twenty four hours after the onset of the illness This is the most valuable aid in diagnosis during the first week before the appearance of the Widal reaction. After the first week the percentage of successful blood cultures take a decided drop This method of examination is now even more of a necessity since the use of typhobacterin in the prophylaxis of typhoid fever A positive Widal results quickly after the vaccination and persists for a varying period making the agglutination reaction worthless in many cases—Sledge in *Southern Med Jour*

SUCCESSFUL CULTIVATION OF MALARIAL PLASMODIA *

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NEW ORLEANS

In a former contribution[1] I first reported my success in cultivating *Plasmodium vivax, P malariæ* and *P falciparum*, and as much additional work has been completed since the appearance of that article, the present brief announcement of results to date is presented pending publication of the full technic and details [2]

The work subsequent to that first described in the article above cited[1] was done in Central America in conjunction with Dr Foster M Johns on a research expedition equipped and sent to Panama by the Tulane School of Tropical Medicine and Hygiene

In the course of this later work it was found that the malarial plasmodia can be grown in human serum, in Locke's fluid (from which calcium chlorid is omitted) and in human ascitic fluid In the majority of cases it was found that dextrose must be added to the medium in order to secure growth of the parasites The plasmodia grow in a thin layer near the top of the cell sediment, beneath which zone the parasites all die

The parasites have been cultivated only in the red cells of human blood and are destroyed by the leukocytes as soon as they are liberated from the erythrocytes, and also by the serum Locke's fluid, ascitic fluid, or, in fact, by any of the mediums experimented with

Plasmodia develop readily in the red corpuscles, apparently digesting the substance of the corpuscles, and segmentation can be followed with great satisfaction in the cultures

The most favorable temperature found for the cultivation of these protozoa is about 40 C They will usually live at a lower temperature, but often will not grow, and as a rule will not multiply

Positive cultures have been obtained from twenty-nine cases of estivo autumnal malaria, six cases of tertian and one case of quartan The cultures have been carried on as far as four generations from the parent culture and with proper attention to technic can doubtless be maintained indefinitely Only the asexual cycle of the parasite has been observed in our cultures [3]

It is hoped that those workers who are in a position to do so will confirm the work already done, those who are interested in the matter are referred to the full discussion [2]

In conclusion I wish to thank the anonymous friend of the Tulane School of Tropical Medicine who, through the Dean of the Medical Department of Tulane University, contributed the fund which paid the expenses of the expedition also the United Fruit Company which, through their manager, Mr C H Ellis furnished complimentary transportation for the members and apparatus of the party, and Colonel W C Gorgas chief sanitary officer of the Canal Zone, with various members of his staff who extended every help and courtesy during the expedition's stay in Panama

4832 Carondelet Street

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* Study 23 from the Laboratories of Tropical Medicine and Hygiene under the direction of Creighton Wellman Medical Department of the Tulane University of Louisiana

[1] Bass C C A New Conception of Immunity THE JOURNAL A M A Nov 4 1911 p 1534

[2] A complete discussion will appear in the October number of the Journal of Experimental Medicine

[3] Cultures preparations and apparatus illustrating the foregoing work will be exhibited at the International Congress on Hygiene and Demography to be held at Washington, September 23-28.

A ROUTINE METHOD OF OPENING THE HEART WITH CONSERVATION OF THE BUNDLE OF HIS AND THE SINO-AURICULAR NODE

B S OPPENHEIMER, M.D
NEW YORK

As it has become important to make detailed pathologic examination of those human hearts which have been studied clinically with the newer instruments (string-galvanometer, polygraph, etc), it is advisable to have a routine method of opening hearts in such fashion that the specialized tissue is left intact for further study The text-books direct one to connect the superior and the inferior vena cava with the scissors but this procedure almost invariably results in cutting the sino-auricular node, one of the important structures which ought not to be injured

DIRECTIONS FOR REMOVING AND OPENING THE HEART

The superior vena cava should be cut high up (an inch or more from its auricular mouth) so as to avoid the sino auricular node One should also not cut too close to the right auricle in detaching the heart from the lungs on the right side

Right Side of the Heart—After removal of the heart, insert the scissors into the opening of the inferior vena cava and cut the right auricular wall close to and parallel with the auriculoventricular groove, extending the incision to the apex of the auricular appendix (Incision 1, diagram) This incision avoids especially cutting along the line connecting the superior and inferior venae cavae, that is, it avoids the sulcus terminalis of His underneath which the sino auricular node is located Lay open the right auricle and inspect it and the tricuspid valve Insert the scissors again into the inferior vena cava and cut along the right border of the ventricle to its end (Incision 2) Then, following the blood stream cut the right ventricle from near its end to and through the mass of fat which is at the base of the pulmonary artery, keeping well over toward the left side so as to pass between the left anterior and the posterior cusps of the pulmonary valve (Incision 3) In making this last incision, it is well to avoid bisection of the anterior papillary muscle, as the right branch of the auriculoventricular system passes directly from the interventricular septum to the anterior papillary muscle

Left Side of the Heart—In opening the left side of the heart the usual incisions following the course of the circulation, give a good exposure and do not injure the specialized tissues

With the scissors connect the orifices of the pulmonary veins Lay open the left auricle and inspect it and the mitral valve Cut from the left auricle, through the mitral valve between the two papillary muscles of the left ventricle to the apex of the heart From the apex make an incision parallel with the interventricular septum and close to it into and through the aorta

One should not make slashes into the interauricular and interventricular septa as these may damage the conducting system Incisions should however be made into the rest of the ventricular wall first to determine the gross characteristics of the musculature and second to facilitate the penetration of the fixative

FIXING AND PRESERVING THE HEART

For general histologic work the following method has proved very satisfactory

1 Fix in Orth's solution (Formaldehyde-Mueller) thirty-six hours, preferably in a warm environment, and change the solution whenever it becomes dark

2 Wash for at least forty-eight hours in running water until the drippings from the heart are no longer yellow

3 Place in a sufficient quantity of 70 per cent alcohol and store in this reagent until the pathologist is ready to undertake the laborious histologic work

4 Or, instead of steps 1 2 and 3 place directly into a 10 per cent dilution of liquor formaldehydi

One of the present problems in cardiac pathology is to correlate the clinical condition with the histologic findings By observing the above method an excellent gross view of the interior of the heart may be obtained and at the same time the material is not injured for further detailed study through the technic employed in removing opening or preserving the specimen

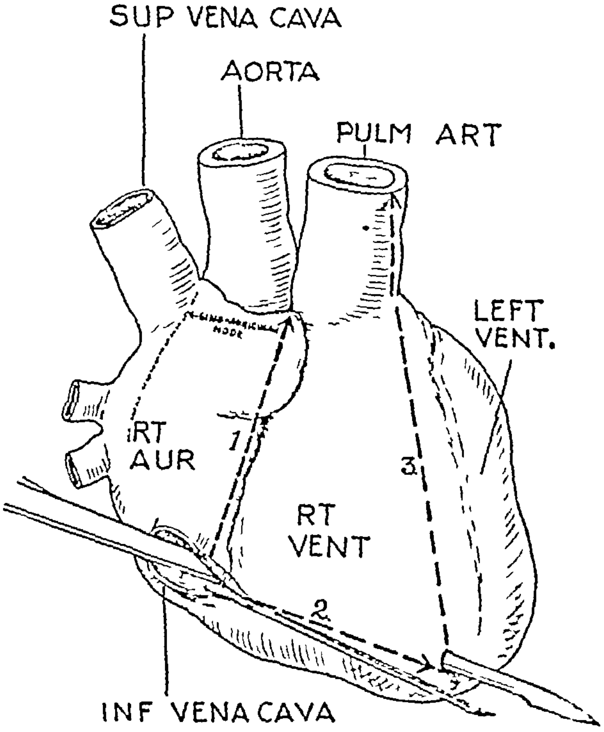

Diagram of a heart showing incisions 1 2 and 3 for opening the right side of the heart without injury of the sino-auricular node which is represented diagrammatically by the fine dotted line

2315 Broadway

DESCRIPTION OF A NEW URETHROTOME

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ST LOUIS

A moment's consideration will make it clear that an ideal urethrotome should possess the following characteristics

1 It should be applicable to all strictures of whatever caliber down to those admitting only a filiform and whether situated in the anterior or posterior urethra

2 It should be provided with some sort of [illegible] mechanism for locating the exact point [illegible] before bringing the knife into action

3 It should be so constructed as to permit the surgeon to pass his knife down to the seat of the stricture without damage to that portion of the urethra lying anterior to it

4 It should be provided with some mechanism for informing the surgeon when he has completely divided the stricture in order that he may not do damage to that portion of the urethra lying posterior to it

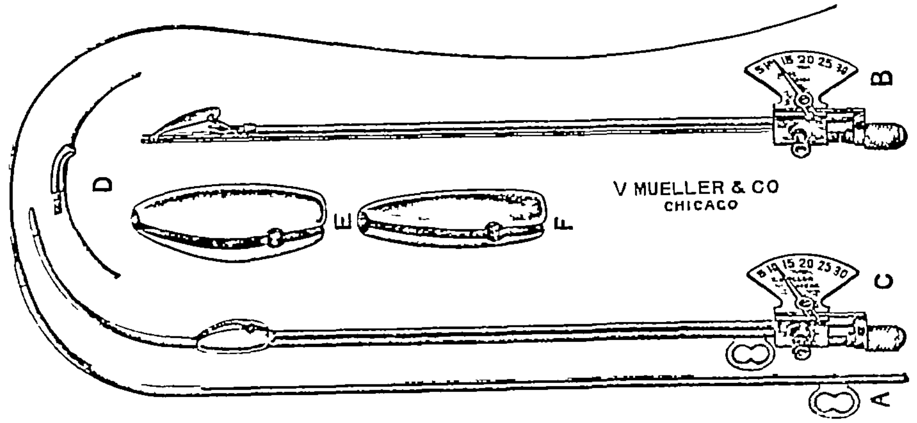
I wish to describe a new instrument which appears to meet all the conditions perfectly It consists of

A A grooved staff similar to that of the Maisonneuve urethrotome, and tipped with a detachable woven filiform guide The groove stops at the beginning of the curve

B A cutting apparatus to be introduced along the groove of the staff and having a hinged knife which can be raised or lowered at the will of the operator by means of a mechanism found in the handle The knife is to be protected during introduction by an olive (E and F), and, as the olive is detachable, any size from 19 to 32 French may be used

An extra tip (D) tunneled for passage over a whalebone bougie accompanies the instrument and the advantages of this will be at once apparent

The method of procedure with this instrument will be as follows First the surgeon will pass the grooved staff down through the stricture, he will then hold it firmly by the little hand-grip between the thumb and index-finger of the left hand Then with his right hand, he will pass the cutting apparatus, olive adjusted and knife lowered, down along the staff until he meets an obstruction This will tell him that his olive lies directly against the face of the stricture, and that he may now proceed to elevate his knife This done he will advance his cutting apparatus further until resistance ceases or becomes greatly diminished, when he will lower his knife again Now he will advance his cutting apparatus further with the knife concealed, thus testing the entire urethra with his olive, and bringing his knife into action only when cicatricial tissue is encountered He may enter the bladder if he chooses The olives, being tapering, have no shoulder to catch at any point Finally the cutting apparatus is to be withdrawn, as it was introduced, with the knife lowered and protected by the olive



New urethrotome A grooved staff B cutting apparatus C cutting apparatus inserted into grooved staff and olive adjusted D extra tip for introduction over a whalebone bougie E and F olives

The surgeon may now exchange his olive for one of larger size and repeat his maneuvers, this time placing his incision somewhat laterally to the original one according to the method of Guiard This he may do again and again, until he has brought the urethra up to such size as he may elect, and then and not till then will he remove the grooved staff

It will be seen that with this instrument the surgeon is enabled to place his incisions with great accuracy, sparing absolutely the sound urethra and dividing beyond peradventure all strictured areas The need of such an instrument has long been felt, and it is hoped that, now that this need is supplied, the operation of internal urethrotomy will rise to that popularity which its true worth deserves

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THE RELATION OF THE PARATHYROID GLAND TO INFANTILE TETANY *

CLIFFORD G GRULEE, M.D
CHICAGO

The evidence for and against the causal relation between lesions of the parathyroid glands and spasmophilia or infantile tetany may come under three heads clinical, pathologic and chemical It should be borne in mind that lesions of the parathyroids have always been regarded only as predisposing factors—in other words, conditions that render the system more susceptible to the convulsive seizures, but that to produce such seizures some active factor, such as diarrhea, constipation, various infections, etc, are necessary This narrows the subject down to the consideration of two questions 1 Are lesions of the parathyroid in any way the cause of infantile tetany? 2 If we answer the first in the affirmative, is a disturbance of the parathyroid secretion necessary in order that spasmophilic attacks may occur?

From a clinical standpoint, we may bring evidence on only the first of these questions It has long been known that total extirpation of the thyroid gland in adults is often followed by tetanic symptoms, and that such do not occur if the parathyroid glands are allowed to remain *in situ* So far as I know, such operation has not been performed on an infant under 2 years of age, and hence we have no direct evidence that such symptoms would occur at this age On the other hand, there is no reason to believe that the results on animals in this instance would differ materially from those on man From personal experience in some experiments[1] recently undertaken, I am convinced that, though exceptions may occur, still we may state that the younger the animal, the shorter the period of life after removal of the parathyroids So far as I have noted the symptoms of thyroidectomized (thyro-parathyroidectomized) dogs, they have simulated very closely those of infants affected with severe convulsive seizures In two ways, however, they may be said to differ In the first place, during the convulsive seizures they do not seem to lose consciousness Our inability to estimate the psychic state in animals under such conditions, and the usually short duration of the convulsion suggest that our observations may be wrong. The rapid, deep, pauseless respiration can hardly be considered as altogether a hyperpnea following an apnea. Here, again, our attitude must be determined by our judgment and not by any direct evidence. In one respect the thyroidectomized animal reacts in exactly the same way as does the spasmophilic infant—the electrical irritability is distinctly increased.

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* Read before a joint meeting of the Chicago Medical Society and the South Side Branch May 17 1912

[1] In the Department of Experimental Medicine University of Chicago

It has long been known that removal of the parathyroid glands in animals brought about these convulsive seizures, but it remained for Erdheim[2] and Yanase[3] to produce definite evidence of the presence of lesions of these glands in cases of infantile tetany. Yanase examined the parathyroids in fifty infants up to 15 months of age which had had an increased electrical irritability before death, and in every instance found lesions, while in those infants in which no increased electrical irritability was found, no lesions of the parathyroids were present. The lesions found were the results of hemorrhage which had probably occurred at the time of birth. These findings have been confirmed by Strada,[4] and in large part by Iovane and Vaglio,[5] but the reports of Jorgenson,[6] Grosser and Betke[7] and Auerbach[8] speak strongly against the regular association of lesions of the parathyroid gland and infantile tetany. It may be said, however, that in the majority of cases so far reported the remains of hemorrhages in the parathyroid glands have been observed. It is quite conceivable, too, that a disturbance of the secretion of the parathyroid gland may occur without the occurrence of a lesion which is recognizable as such by our present methods.

For many years infantile tetany has been theoretically connected with a deficiency in the retention of calcium. The intimate clinical relations between spasmophilia and rachitis and the latter disease and calcium bone deposit perhaps suggested this theory. The brain calcium estimations of Quest[9] and the experiments of Rosenstern[10] tend to confirm this theory, while the metabolic experiments of von Cybulski,[11] of Schabad,[12] and of Haskins and Gerstenberger[13] tend to disprove it. MacCallum and Voegtlin[14] found a negative calcium balance in parathyroidectomized dogs, while Cooke[15] obtained directly opposite results. In experimenting with babies suffering with convulsions and other spasmophilic manifestations[16] several years ago I was convinced that while a food containing milk, either whole or skimmed, rather increased than decreased the convulsive tendency, if the whey were removed, there seemed to be in all cases a distinct tendency to improvement, provided the convulsive seizures were not so severe that sedatives were necessary, and even in these cases the reaction to sedatives was more prompt and complete. The whey contains, in addition to water, protein, milk-sugar and some salts. Since much protein is contained in the curd, and since milk sugar and other carbohydrates have proved to be non-irritating in this condition, it was thought that the salts might be to blame. Most of the calcium is held in the curd, so that when the whey is removed the salts thrown out consist largely of sodium and potassium. About this time Reiss[17] called attention to the antagonism between calcium and magnesium on the one hand and sodium and potassium on the other in respect to the irritability of the nervous system, and suggested that some like disturbance of salt metabolism might be the active cause in spasmophilia.

In order to get some definite data on this subject I decided to undertake some metabolic experiments on young dogs before and after thyroidectomy.[1] It was possible to complete these in four of twelve young dogs. In the first two complete experiments there was seen a distinct retention of sodium, with no distinct change in the calcium, after removal of the thyroid. In the last two one showed a distinct excretion of calcium with slight excretion of sodium, while in the other, although the sodium retention was practically the same before and after operation, the calcium showed a slightly negative balance. The magnesium and potassium in both instances showed a distinct loss.

On the strength of these results one might conclude that there was, after total thyroidectomy in young dogs, a disturbance of salt metabolism such as Reiss suggests. One must be cautious, however, in interpreting such findings. Injections intraperitoneally of normal solutions of sodium and calcium salts, both before and after operation, did not apparently either delay or hasten death. I think it fair to conclude that the findings here set down, though not necessarily the result of parathyroid removal, at least are strongly suggestive, since, so far as is known, the acute changes following complete thyroidectomy are due to removal of the parathyroids. (The work was not undertaken primarily to study the action of the parathyroids, but only the convulsive condition caused by their removal.)

To complete this work clinical experiments are now in progress, and in at least one case the addition of sodium chlorid and potassium chlorid to the food in quantities equal to the amount of whey corresponding to the curds used has produced a distinct increase of electrical irritability.

We have, then, no absolute evidence that lesions of the parathyroids are responsible for the cases of infantile tetany. We can say, however, that removal of the parathyroids in adults and animals produces a condition which, if not identical, closely simulates spasmophilia. In a majority of cases of infantile tetany there is found some lesion of the parathyroid glands. And there is strong reason to believe that the same disturbance of salt metabolism occurs in the tetany of animals produced by thyroidectomy as in the spasmophilia of infants.

In answer to the two questions propounded earlier in this paper we may then say that it is altogether likely that lesions of the parathyroid are a causal factor in infantile tetany, but that it is in no way proved that such lesions must exist in all cases.

122 South Michigan Avenue.

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[2] Erdheim: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1906.
[3] Yanase: Jahrb. f. Kinderh., 1908, lxvii (1. H.), 57.
[4] Strada: Riv. di Clin. Ped., December, 1909 (Ref. Jahrb. f. Kinderh., 1910, lxxi, 211).
[5] Iovane and Vaglio: La Ped., 1910, xviii, 709 (2d Series, viii).
[6] Jörgenson: Monatschr. f. Kinderh., 1911, x, 154.
[7] Grosser and Betke: Ztschr. f. Kinderh., 1911, i, 458.
[8] Auerbach: Jahrb. f. Kinderh., 1911, lxxiii, 193.
[9] Quest: Jahrb. f. Kinderh., 1905, lxi, 114.
[10] Rosenstern: Jahrb. f. Kinderh., 1910, lxxii, 154.
[11] Von Cybulski: Monatschr. f. Kinderh., 1906, v, 409.
[12] Schabad: Monatschr. f. Kinderh., 1910, ix (Orig.), 25.
[13] Haskins and Gerstenberger: Jour. Exper. Med., 1911, xiii, No. [illegible]
[14] MacCallum and Voegtlin: Jour. Exper. Med., 1909, xi, 118.
[15] Cooke: Jour. Exper. Med., 1910, xii, 45.
[16] Grulee, C. G.: Arch. Pediat., 1912, xxix, 24.
[17] Reiss: Ztschr. f. Kinderh., 1911, iii, 1.

Anesthetizing Children.—Never begin the [illegible] until the surgeon is ready to operate. This is a thing that I [illegible] to impress not only on anesthetists but [illegible] general practitioner. I have seen many patients [illegible] have been kept [illegible] anywhere from [illegible] minutes before the operator was ready to begin.—[illegible]

CESAREAN SECTION DONE UNDER SPINAL ANESTHESIA FOR ECLAMPSIA

REPORT OF THREE CASES *

JAMES P MARSH, MD
Attending Surgeon Samaritan Hospital and Consulting Surgeon Leonard Hospital
TROY, N Y

Case 1—Mrs E W L, aged 32, was admitted to the Samaritan Hospital, Troy, N Y, Nov 28, 1911, having been referred to my service by Dr Thurman Hull

About five years previously, she had two miscarriages and with both there were convulsive attacks, although she is said to have had no albumin in the urine at that time The day before admission to the hospital, when between seven and eight months pregnant, she was taken suddenly with convulsive attacks, and thereafter had a convulsion about every half hour until her admission, at which time the bowels were moving involuntarily and there was a small amount of blood coming from the vagina The pulse at 70 was of a fairly good quality The temperature was 99 3 F The urine was said to contain a large quantity of albumin The skin was pale and very dry The pupils were mid wide and did not respond to light The tongue was clean The lungs were normal The apex of the heart was in normal position but the sounds were weak, indistinct and irregular The liver dulness was normal The abdomen was full, rounded and universally dull The fundus of the uterus was 2 inches below the ensiform cartilage and a pregnancy was easily diagnosticated The small parts were to the right, dorsum to the left head in the pelvis There were neither fetal heart sounds nor fetal movements

The os was dilated so as to take the tips of two fingers, was hard and did not respond to manual dilatation The patient was semiconscious and there was a paralysis of the right side of the face and body

At 2 p m she was given 10 minims of Norwood's tincture of veratrum viride and poultices of digitalis leaves were applied to the lumbar spine At 3 20 p m she was given 10 grains of theobromin sodium salicylate The specific gravity of the urine was 1 024 reaction acid, albumin in large quantity, granular and hyaline casts and red blood cells

After a number of convulsive attacks, about midnight the patient went into a heavy stupor which was broken by periods of active delirium There were no convulsions and she voided involuntarily

At 5 p m November 29 under spinal anesthesia, with the use of stovain according to the formula of Dr Babcock of Philadelphia through a median section, a hysterotomy, the extraction of a dead female child and a complete supra vaginal hysterectomy were done The uterus contained several fibroids of various sizes

The next day the patient was restless vomited several times and voided urine involuntarily The right side of the body and face were still paralyzed The convalescence was smooth Surgically speaking the patient made a complete and quick recovery Immediately after the operation the urine began to clear so that by December 17 it was free of albumin The paralysis in the right leg had improved when the patient left the hospital Jan 20 1912 On July 4 1912 it was reported that she had regained very good use of her right leg and that the arm motions seemed to be improving rapidly

Because of the low pulse-rate and the presence of a right sided hemiplegia although there was an undoubted albuminuria with casts and red blood cells the diagnosis of uremic eclampsia may be open to a reasonable doubt, but all who saw this case with me felt that the doing of cesarean section under spinal anesthesia was the proper procedure

Case 2—Mrs M C aged 27, patient of Dr J H Flynn was nearing the end of her first pregnancy when on Dec 30 1911 at about 7 p m suddenly and without any premonition, she was seized with eclamptic convulsions, which continued during that night without the appearance of labor pains On the morning of December 31, Dr Flynn introduced a catheter into the uterus for the purpose of inducing labor As the day wore on and labor did not supervene, and as the patient was semiconscious and pulmonary edema had developed, Dr Flynn had her removed to the Leonard Hospital, Troy, and asked me to see the patient with him

On admission her temperature was 102 F and pulse 136 She was semiconscious, cyanotic and was having frequent convulsions There was marked pulmonary edema This condition continued up to the time of my operation on the evening of December 31

Under spinal anesthesia, the same as in the first case, I performed the cesarean section, extracting a child which lived four hours As the catheter was found in the uterine cavity, between the membranes and the uterine wall, it was thought that sepsis might occur and a complete hysterectomy was done

The patient made a good surgical recovery, but convalescence was complicated by a mammary abscess where repeated hypodermoclysis had been given The patient was finally discharged from the hospital in good condition Jan 27, 1912 The albumin, however, never entirely cleared up

Case 3—Mrs C McC, when between eight and nine months pregnant, was taken, Jan 27, 1912, at about 10 30 p m with uremic convulsions All day she had had headache and was restless, but there had been no signs of labor After the first eclamptic seizure, convulsions followed each other frequently Dr Winship, of Eagle Mills, was called to attend the patient and sent her in to my service in the Samaritan Hospital Jan 28, 1912 On admission the patient was comatose and was having frequent convulsions

The family history was good The patient began to menstruate at 11 years of age and had always been regular, she was married at 19 and had had two children, both of whom were living, previous to the birth of the second child she had considerable "bloating," and one year previously she had had scarlet fever and was very ill for two weeks She was a well nourished and well developed woman The skin was pale and dry, the face was expressionless and edematous, and the pupils were small The tongue was bleeding from teeth wounds and much swollen The apex of the heart was displaced outward, but there were no murmurs The liver dulness was normal and the spleen was not palpable The abdomen showed a normal pregnancy of about eight and one half months with the head in the left occipito anterior position The kidneys were not palpable and the genital organs were edematous The urine was said to be scanty and highly albuminous A diagnosis of eclampsia was made

Under spinal anesthesia, a classical cesarean section was performed, with the same technic as in the previous cases A living female child was delivered The operation was slow, taking one hour and five minutes, most of this time being used in carefully closing the wound in the uterus

For several days the patient had some rise in temperature and at one time it went up to 102 F, with a pulse of 110 but on the seventeenth day it reached normal and so remained She was discharged from the hospital, well Feb 22 1912

On January 28, the day of admission this patient's urine was acid specific gravity, 1 000, and contained a large quantity of albumin, red blood cells, leukocytes and granular casts On February 20 it was acid, specific gravity 1 016, and did not contain any albumin

These three cases belong to a class in which previously I have always lost both mother and child

In the early years of my practice, about twenty-five years ago I used to treat the patients medically and all died Then I did manual dilatation, and *accouchement force* and they all died Then I turned to cesarean section under ether and was equally unfortunate, and so I had come to look on the cases as being necessarily fatal whatever might be done. I wish no one to be mistaken as to the class of cases about which I am talking There is a vast difference in the chances of a woman taken with eclampsia when labor is present or has progressed more or less, and the chances of one taken with eclampsia in the eighth or ninth month of pregnancy all signs of labor being absent It is of this latter class that I am speaking All of these three women were *in extremis* and I am sure that with any other mode of anesthesia they would have been lost

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* Read at the annual meeting of the Greene County Medical Society, New York, July 1912

There was much doubt in my mind, before doing my first operation, as to whether or not the uterus would contract promptly and efficiently under this form of anesthesia, but in all of the cases the contraction was excellent and just as firm as when I have done cesarean section under ether

Professor Babcock of Philadelphia writes me that he is quite sure that these cesarean sections are the first in the United States to have been done under spinal anesthesia, he thinks that they are the first to be reported from any country

1828 Fifth Avenue

SUBCLAVIAN ANEURYSM WITH SUCCESSFUL ENDO-ANEURYSMORRHAPHY

EARLE DRENNEN, M D, BIRMINGHAM, ALA

Patient —R W a boiler maker, aged 38, was admitted to St Vincent's Hospital March 12 1912 He was pulseless and in extreme shock from loss of blood consequent on a stab wound just beneath the middle of the left clavicle, inflicted a few minutes before By packing the wound and applying pressure over it, hemorrhage was checked The shock was combated by intravenous infusion and other routine measures Four days later, signs of aneurysm were first discovered on auscultating near the stab wound, which region was perceptibly bulging Expansile pulsation and a thrill were evident to palpation The left radial pulse was slightly weaker than that of the right side He was kept in bed with rest and suitable diet for three weeks. During this time, he complained of considerable pain over the tumor and shooting down the arm Beginning on the eighth day, powerful compression was applied over and just above the tumor three times daily for a period of fifteen minutes each time The pressure employed above the clavicle stilled the pulsation and bruit in the sac likewise the radial pulse was obliterated Following this procedure, the patient experienced complete relief from his pain At the end of three weeks he refused operation and left the hospital Two weeks later he returned, complaining of much pain over the tumor, which had visibly increased in size He was pale and very weak Operation was decided on at once His family and past history were negative He had never had syphilis

Operation —The patient was anesthetized and an incision 3 inches in length was made about half an inch above the clavicle and parallel to it The subclavian artery was exposed and a temporary tape ligature passed around it and tied at the point where the artery emerged from behind the scalenus anticus muscle Next an incision 4 inches in length was made along the lower border of the clavicle its middle corresponding to the bulging of the tumor The sac was quickly opened and furious hemorrhage occurred This was controlled with great difficulty by pressure, but in spite of all efforts blood kept welling up in such quantities that nothing could be done Finally an aneurysm needle threaded with a stout heavy ligature was passed around the artery beneath the clavicle just proximal to the sac the wounds above and below the clavicle having been made freely into one large wound By a lifting and squeezing action with this ligature all hemorrhage from the proximal opening into the sac was stopped The bleeding from the distal opening was controlled by pressure, and a stitch taken across its lumen, when pulled on, this stitch effectually stopped all bleeding It could now be seen that the aneurysm involved the third portion of the left subclavian artery that it was the size of a small hen's egg and contained considerable fibrin clots etc., and that there were two openings about three eighths of an inch in diameter, and a similar distance apart No groove between the two could be demonstrated The detritus was removed from the sac The openings were then closed with interrupted chromic catgut stitches, four stitches being taken in the lower and five in the upper The temporary ligatures proximal to the sac were now removed the sac remained dry The sac was then closed with a running Lembert suture The radial pulse while quite weak on the left side, immediately after the operation was easily felt and the next day was equal in size and strength to that of its fellow

Postoperative History —Healing occurred by first intention and convalescence was uneventful The patient was kept in bed three weeks and then allowed to go about Since the operation the left arm and side have been normal in all respects The patient returned to his arduous work eight weeks after the operation When he was seen three weeks later, there was no tumor no bruit and no pulsation under the scar The left radial pulse was similar in all respects to that on the right side The patient feels well and has gained 25 pounds Although careful search has been made of the literature, *no record* of a successful aneurysmorrhaphy of the subclavian artery has been found It is my belief that it was possible in this instance only because all the tissues involved were healthy The most impressive thing about the operation was that ligature above the sac apparently had no effect on checking hemorrhage from the opened sac It is possible also that the compression employed in this case accentuated an already free collateral circulation

A CASE OF SPOROTRICHOSIS IN NORTH DAKOTA PROBABLE INFECTION FROM GOPHERS

G M OLSON M D, FARGO N DAK

A few cases of sporotrichosis have been reported in North Dakota Probably many cases are not recognized Diagnosis is easy if this disease is kept in mind Potassium iodid occasions a prompt recovery Ordinary surgical treatment is of little avail

Patient —G A a man, aged 19 Five weeks before examination while at Tappen N Dak a lump like a boil appeared on the dorsum of the right hand No pain, tenderness, fever or other constitutional symptoms were present A few days later subcutaneous nodules began to appear on the back of the right forearm On examination there was an ulcer about 1 inch in diameter on the dorsum of the right hand The ulcer was raised and contained thick gelatinous pus There was no pain, tenderness fever or headache Three nodules on the back of the right forearm were similar to that on the hand except that there was no ulceration There was a distal nodule about one half inch in diameter raised and purple red in color Other nodules were smaller Proximal nodules were wholly subcutaneous and not adherent to the skin

Culture —On blood serum a number of snowy white colonies appeared in three or four days Two days later the colonies were brown A smear from the culture showed a branching mycelium with oval or ovoid spores

Source of Infection —Patient was on a farm at Tappen N Dak but states that none of the cows or horses had any sore Many gophers that he killed and handled had sores similar to that which later appeared on his hand As sporotrichosis is prevalent among rats it is probable that gophers may be infected with this disease

Treatment —Tincture of iodin was applied locally [illegible] sium iodid 10 minims was given three times a day [illegible] days the ulcer had nearly healed and the nodules [illegible] appeared

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[*For other information see second page following reading matter*]

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THE EYE, EAR, NOSE AND THROAT NUMBER

This issue of THE JOURNAL is a special Eye, Ear, Nose and Throat Number It is in two parts Part 1 is the regular issue, Part 2 contains the articles, and the discussions thereon, presented at the Atlantic City Session, 1912, in the Section on Ophthalmology and in the Section on Laryngology, Otology and Rhinology

PHYSIOLOGIC FEATURES OF HIGH ALTITUDES

There are manifold relations between climate and man which can justly lay claim to scientific interest Some of them have agricultural or anthropologic bearings, whereas the physician is especially concerned with those features which relate to hygiene or therapy The underlying problems have been studied in various ways in the past, either by observation under the conditions which actually obtain in nature, or in the laboratory where an attempt is made to imitate and experimentally control individual factors such as temperature, humidity and barometric pressure Within the past decade investigation in each of these directions has received a noteworthy impetus so that there is available at present a considerable body of useful scientific literature relating directly to the subject of climate In a way, laboratory studies like those conducted in the respiration chamber have served to supplement or confirm the evidence collected in the open air

As happens not infrequently in scientific work, the improvement in apparatus and the refinement of experimental technic, along with an accumulation of healthy criticism, have modified some of the earlier views regarding the effects of certain climatic factors It may be helpful to take a retrospect of the advance in knowledge which a decade of investigation has brought in respect to the physiology of altitude[1] A few years ago it was confidently stated that removal to higher altitudes was attended with a decided increase in the number of red corpuscles and the percentage of hemoglobin in the blood This result was looked on as a compensatory response on the part of the organism, whereby the possible inability of the body to satisfy its oxygen needs in the presence of a lowered barometric pressure was averted With improved technic in hematologic work, whereby especially the more rapid evaporation of blood samples at higher altitudes is avoided, the tendency has been for the earlier reported extreme increases in the oxygen-carrying blood constituents to disappear The reports of more recent years, such as those made by Burker and his colleagues,[2] show at best only a comparatively small increase amounting to 4 or 5 per cent at altitudes of five or six thousand feet The same moderate results have likewise been noted lately for much higher altitudes There is no displacement of the usual relations between the number of corpuscles and the content of hemoglobin and iron in the blood, contrary to the conditions formerly alleged to exist at lowered barometric pressures Cohnheim has essayed to attribute to a concentration of the blood at high altitudes the almost insignificant increases which have undeniably been found by competent observers The climate is always dry and evaporation proceeds rapidly As a result individuals lose water more readily than at lower levels, and the losses become more pronounced and conspicuous in smaller animals, such as those which commonly serve the purposes of experiment If this explanation is tenable, the increases in corpuscles or hemoglobin content occasionally found are in no wise the expression of a lack of oxygen, they are rather the outcome of the increased evaporation under the newer conditions of climate Thereby one reputed response of the organism is no longer tenable as a therapeutic hypothesis

The influence of altitude on respiration has, of course, always been the subject of speculation, especially in its relation to mountain sickness Two factors come into play As the altitude increases, a lowered tension of oxygen in the alveolar air results, and there is a diminished tension of carbon dioxid The rate of respiration may be variously influenced in different circumstances, but the depth of respiration is almost invariably increased This, of itself, not only facilitates the oxygen supply, but also increases the elimination of carbon dioxid These effects are reflected in the content of the two gases in the blood Since Haldane's classic investigations on the regulation of respiration by the carbon dioxid tension in the blood it has become apparent why respiration may become so markedly modified under these conditions Mosso and his followers were always inclined to attribute to the acapnia a very important rôle in the physiologic disturbances noted in high altitudes Undoubtedly acapnia is a factor to be reckoned with, but the primary and fundamental feature is the lowered oxygen pressure to which the other consequences are in reality secondary

Whether the pulmonary exchange of gases proceeds according to well-known physical laws at high altitudes, or there is an active secretion of oxygen by the pulmonary epithelium into the blood, as has lately been maintained, remains to be determined.[3] In addition to these purely respiratory influences there is evidence of an increased combustion in the body under conditions of lowered oxygen tension and there are undeniable influences on nitrogenous metabolism. Effects of this type still await an explanation. Unquestionably very high altitudes—and perhaps those moderately high—are detrimental to human health, but the great body of clinical climatologic literature still needs to be sifted and studied in the light of modern physiology before an adequate understanding of reputed and unquestioned curative virtues of mountain resorts can be attained.

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[1] For a very recent review of this subject see Cohnheim O Physiologie des Alpinismus II Ergebn d. Physiol 1912 xii 628 also Anglo-American Expedition to Pike's Peak THE JOURNAL A. M. Aug 10 1912 p 449

[2] See editorial Altitude and Blood Corpuscles, THE JOURNAL A. M. A., *February 3* p 344

GRADUATES OF SECTARIAN SCHOOLS IN THE GOVERNMENT SERVICES

In the discussion over the creation of a national department of health, the statement has frequently been made that the three medical services of the government, namely, the Medical Department of the Army, the Medical Corps of the Navy, and the Public Health Service, were exclusively manned by graduates of so-called "regular schools," and that such a condition was due to a plot on the part of the "regular" medical profession and the American Medical Association to exercise a "monopoly." The fact is that the American Medical Association, fully appreciating that such action would be beyond its province, never has attempted to influence an appointment to one of these services.

In order to secure official statements of the present personnel of the government services, letters were recently addressed to the surgeons-general of the three services asking whether there were graduates of sectarian schools in the service at present and whether there was any provision in the law which prevented any graduate of any medical school from being appointed to a position in the service. In reply, Colonel J. R. Kean of the surgeon-general's office of the Army Medical Department writes:

> Our requirements are that a candidate for admission to the medical corps shall be a graduate of a reputable medical school and shall pass the examination. This does not exclude sectarians if they are well grounded in scientific medicine. There is, I think, one graduate of an eclectic school in the active list of the Medical Reserve Corps and two graduates of homeopathic schools.

Surgeon-General Charles F. Stokes of the United States Navy writes:

> There are at present medical officers of the Navy on the active list who are graduates of homeopathic colleges. There is no reason why a graduate of a homeopathic or eclectic medical college who has had a year's experience in a general hospital on successfully qualifying physically, professionally and morally should not receive an appointment to the Medical Corps of the United States Navy.

Assistant Surgeon-General J. W. Kerr of the Public Health Service writes:

> One of our active assistant surgeons is a homeopathic graduate, and another is of the eclectic school. One of our passed assistant surgeons is a graduate both of a homeopathic school and of a "regular" school. There is no reason why a graduate of medicine from any reputable school could not be admitted into the service provided he was a gentleman and had passed the required examinations.

These official statements are sufficient refutation of the charge that graduates of sectarian schools are not eligible to appointment in the government services.

The scientific and educational qualifications required for admission to the services are the same for all applicants whatever the particular "school" to which they may belong. The examinations to ascertain these qualifications test the candidate's training in the fundamental medical sciences; they are practical ones, that is, they do not consist simply of written questions and written answers, but of laboratory and clinical demonstration of the knowledge of the applicant on the various subjects; they demand practical knowledge and not merely theoretical — book — knowledge. If but few graduates of sectarian schools gain admission to the government services, this is due to one of two reasons. Either such graduates do not apply, or else they are not qualified to pass the examinations. The latter is the more probable explanation, for it is well known that, with few exceptions, the sectarian colleges are too liberal in their requirements for admission and are weak in both their teaching staff and their laboratory equipment, so that they do not give the practical training demanded by the government. Investigation of those who succeed in entering the service will reveal the fact that it is not alone the sectarian schools that are not represented or represented only in small numbers, but also the low grade schools generally—including the so-called "regular" as well as the sectarian.

The truth, as all who are conversant with the facts are aware, is that few graduates of sectarian schools are able to secure appointments for the same reason that few graduates of low grade "regular" schools are appointed—namely, that the equipment and character of instruction at these schools are not sufficiently high to prepare the graduates so that they can comply with the standard required by the government service. It is not a matter of "schools" or "sects"; it is a question of a working knowledge of the sciences fundamental to modern medicine.

DIET FACTORS AND THE SKIN

Although the skin is the seat of manifold disturbances which are undoubtedly associated with alterations in nutrition, it can scarcely be said that there is developed at the present day, anything which might be designated as a chemical physiology of this tissue. Something is known, in truth, of the secretions of the skin, their composition and the conditions under which they are manifested, but what positive knowledge is available in respect to the chemical make-up of this organ or protective tissue which takes no mean part in the def against our environment? When it is stated that the skin is largely albuminoid in character the essential known fact is told Yet there must obviously be other factors concerned in those sensitive responses which the integument is capable of displaying at times and under suitable provocation Every practitioner has to deal with stubborn affections of the skin which often resist equally the mildest or the most drastic treatment It is easy to classify the phenomena into disturbances of nutritive or nervous origin, respectively, but little is gained thereby for any fundamental appreciation of the etiology of these manifestations We need to know not only that the skin becomes sensitive under certain conditions of diet or drugging, but also why this reactivity develops and of what organic changes it is the expression[1]

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[3] See editorial, The Anglo-American Expedition to Pike's Peak, The Journal A. M. A., August 10, p. 449.

One clue to the situation appears to be found in the disturbances that may arise in the inorganic or "mineral" metabolism of the body We have taken occasion repeatedly to emphasize the fact that profound alterations in the dietary involving radical shifts in the types of foods consumed may be attended by considerable changes in the so-called salt metabolism A marked loss of mineral nutrients may ensue, for example, or, what is equally significant, the inorganic components of the organism may experience a depletion of the store of some individual element, like calcium or the alkalies, leading to a rearrangement or incoordination of the ions present Acid-forming foods may lead to a shift in the usual proportions of the elements which constitute the inorganic environment of the living cells

Dr Luithlen of Vienna has undertaken to ascertain whether the inorganic constituents of the skin show any changes in composition incident to conspicuous upsets in the general inorganic metabolism Studying the proportions of calcium, magnesium, sodium and potassium present in the integument under radical changes of diet or after administration of acids or the decalcifying oxalates, he has found that distinct chemical alterations can be detected Sometimes it is an altered content of all the bases that is brought to light by his analyses,[2] and sometimes a disturbance in the relative proportions of the individual ions Here at length is some tangible evidence of a coincidence of general alterations in nutrition with changes in the actual chemical texture of the skin

The next logical step, that of investigating the possible correlation of the chemically altered skin with a specific reactivity or sensitiveness of the integument under these new conditions, has also been undertaken by the same author[3] He has studied the comparative response of the skin to typical irritants under a variety of experimental conditions in which altered inorganic composition of the tissue had been shown to occur Thus there were observed to be wide differences in the reaction to croton oil or turpentine and camphor Animals subjected to acid intoxication or oxalate administration proved to be extremely susceptible On the other hand, administration of lime in the form of calcium chlorid distinctly checked the exudations The bearing of these facts in the management of certain types of dermatitis becomes apparent

These "diatheses" could, moreover, be induced by suitable diet changes as well as by specific chemical treatment In rabbits a diet of oats, notably deficient in calcium and acid-forming in character, was far more potent in producing skin sensitiveness than was a mixed diet with green vegetables It is apparent that increased loss of alkalies from the organism is the forerunner of a state of irritability which can be overcome by the administration of lime The researches of Jacques Loeb have prepared us to expect such antagonisms among the inorganic constituents of the organism Healthy nutrition, whether of the body as a whole or of some organ like the skin, depends on the maintenance of a delicate adjustment or equilibrium of the inorganic elements Dermatology may well profit by taking into account the possible function of these factors in the interrelations of nutrition and the conditions of the skin

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LEAD POISONING AND ENCEPHALOPATHY

In certain cases of lead-poisoning recently mentioned in THE JOURNAL,[1] apparently the chief source of absorption was by inspiration of air permeated with lead-dust It has by no means been determined just what relation the atrium of absorption of lead bears to the clinical form of poisoning which develops Absorption through the digestive tract and skin seems to result more commonly in colic and neuritis, while there is some ground for supposing that absorption from inspiration of lead-laden dust is more liable to be followed by the so-called lead encephalopathy This is a comparatively rare form of lead-poisoning in which the symptoms appear first or chiefly in the cranial nerves The affection usually appears in the laryngeal, pharyngeal, facial, optic and ocular nerves Concomitant central symptoms are vertigo, headache and mental apathy

That the medical corps of the Navy is alive to its responsibility in the matter is shown by Medical Inspector E R Stitt,[2] who describes three cases of lead encephalopathy in the naval hospital at Canacao, P I All three had developed in men engaged in scaling or chipping off red-lead paint in a compartment of the torpedo-boat destroyer *Chauncey* One patient was admitted under the diagnosis of enteritis with a developing psychosis, probably dementia præcox The second patient was admitted in a stuporous condition suspected to have been caused by estivo-autumnal malaria The third patient was admitted under the diagnosis of lead-poisoning with epileptiform convulsions, and was the only one with a clear history of exposure to lead

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[1] Compare Bulkley L. Duncan Diet and Hygiene in Diseases of the Skin THE JOURNAL A. M. A., Aug. 17 1912, p 535

[2] Luithlen, F Ueber Chemie der Haut Wien. klin Wchnschr 1912, No. 15

[3] Luithlen F Tierversuche über Hautreaktion Wien. klin. Wchnschr 1912 No. 20

[1] Lead Poisoning in Battle-Ships THE JOURNAL A M A August [illegible] p 375

[2] Stitt E. R Lead Poisoning and Encephalopathy from Inhalation of Red Lead Dust, U S Naval Med. Bull April 1912

The correct diagnosis in the first two cases and a confirmation of the diagnosis in the third was made by finding a punctate basophilia in the red blood-cells This basophilia consisted of large irregular or splotchy spots, taking a basic stain, in the red cells Stitt made a series of experiments in rabbits to determine the diagnostic value of basophilic stippling in plumbism The experiments indicated that the sign was of little value, and this conclusion is supported by the findings of Oliver[3] in Scotland, who found the sign negative in 40 per cent of his cases Stitt, however, states that the diagnosis in his own three cases was made on the presence of this stippling and quotes P Schmidt to the effect that when basophilic granules are present to the number of 100 per million of the red blood-cells, it is pathognomonic of lead-poisoning Stitt considers that malarial stippling can be differentiated from plumbic stippling by the tendency in postmalarial anemia for the bluish dots to be small and round, instead of large, irregular and splotchy

A series of three cases is too small to justify the conclusion that the absorption of lead through the respiratory atrium is more liable to induce lead encephalopathy than its introduction by ingestion or by the skin, but the point needs further elucidation and observation

The presence of basophilic stippling in red cells is of real aid in the diagnosis of plumbism This emphasizes the value of a blood examination in every case in which the diagnosis is obscure or doubtful A blood smear can be made, stained and examined microscopically in a few minutes, and often this simple procedure will throw unexpected light on the clinical picture

PHILOSOPHY SCIENCE AND MEDICINE

"No philosophy evolved from the inner consciousness of man has ever done man half the good that has been secured to him by the discovery of the agents of infection In fact, no discovery in science has failed to better the lot of man" With these significant words Prof V C Vaughan of the University of Michigan replies, in an admirable address[4] that merits wide distribution to the strictures of those modern writers who charge science with being essentially materialistic in its aims and scope These philosophers evolving what they assume to be an exalted idealism out of their inner self are all too frequently in apparent ignorance of the real contributions which science has made alike to knowledge and to human happiness Confident that the inner life' contributes some superior sort of moral worth to the individual they fail to grasp the significance of the forces about us and the biologic tendencies within us which determine in largest measure what constitutes human welfare and social and racial betterment

Scientific men (and these necessarily include medical men) build their idealism solidly up from the ground they do not suspend it precariously from star beams 'The foundation-stone of my philosophy writes Professor Vaughan, 'is the doctrine of evolution' He points out that we deal here not with inscrutable forces which man cannot know cannot modify cannot study, but rather with potent factors that call for the best effort in behalf of the race What higher incentive can there be for example, to keep one's self clean morally and physically than the facts derived from the study of heredity? And when the added undeniable influence of environment in the modification and improvement of the species is taken into account, it is apparent that every effort to improve the conditions under which men live is based on motives quite as dignified and worth while as the musings of the philosopher who claims to cultivate the good and beautiful for its own sake

It is timely to refute the charges of materialism which are now and then preferred against medicine As Vaughan points out our knowledge of the spread of infection is the strongest factor in the social movements of the day Disease still takes a heavy toll Ignorance and deep seated prejudice still are often found retarding progress in unexpected quarters The philosophy of science concerns itself with this world and this life and reaches every condition It is a truth which will bear insistence and repetition that the dicta of science are a high, noble and powerful incentive to righteousness "To widen the domain of knowledge, be it ever so little, to abate disease, to lessen pain and suffering, to decrease the burden of poverty to brighten and ennoble the lives of others, to harness the forces of Nature and make them subservient to man's will and contributory to his happiness to make man more considerate of his fellow to appreciate and perform his duties—these are some of the things that science has done and is doing"

THE ARTIFICIAL FERTILIZATION OF EGGS

With recent progress in the application of physico-chemical studies to the problems of biology a little light has begun to penetrate the veil of mystery that surrounds the phenomena of the fertilization of eggs Artificial parthenogenesis—the process by which an egg starts on the road to development without the aid of spermatozoa—has long been known as an experimental possibility and the experiments of Loeb [illegible] and others have given [illegible] methods by which the independent [illegible] changes can be initiated or [illegible] fertilization is [illegible] the [illegible]

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3. Oliver Sir Thomas Bulletin of the Bureau of Labor July 1911

4 Vaughan V C The Philosophy of the Scientist, Science Aug 23 p [illegible]

face layer of the egg which may or may not result in the formation of a fertilization membrane Many methods can be applied to induce the superficial cytolysis which starts the development of the egg Unless, however, a second treatment is applied, the eggs tend to perish during the further development In the case of some of the lower forms a brief treatment with hypertonic sea-water will suffice to remedy the sickly condition of the eggs at this stage and allow practically normal development

Much interest centers in the fact that the spermatozoon also appears to cause the development of the egg by carrying into it two agencies, one of which is a cytolytic substance, or to use a recent designation a lysin, which causes the membrane formation T Brailsford Robertson[1] of the University of California has succeeded in extracting from the sperm of an invertebrate a substance which is capable of fertilizing the eggs of that species and acts as a powerful agglutinating and cytolyzing agent on them This illustrates the biochemical turn of modern investigation and the departure from the old "vitalistic" attitude It now appears that these lysins are by no means specific for the spermatozoon but are found in the cells and blood of animals The blood of cattle, for example, contains them,[2] and there is some ground for believing that the fertilizing agent in spermatozoa is identical with that in blood-serums Loeb has explained the fact that the blood of each female does not cause the parthenogenetic development of its own eggs by the theory that, while the lysins contained in the blood of foreign species can diffuse with comparative ease into the egg and cells of an animal, the lysins contained in its own blood are prevented from such a diffusion This difficulty can be overcome by physicochemical methods so that the eggs will become permeable to the fertilizing agent

Obviously, if the underlying principles here illustrated have any broader significance and do not merely lead to some unique and abnormal phenomenon in an occasional species — in other words if the lysin theory of fertilization is to be regarded as more generally applicable — the field of observation must be widened Loeb and Wasteneys[3] have been engaged at the Rockefeller Institute in ascertaining whether the mechanism of fertilization referred to finds an exemplification in the artificial parthenogenesis of the eggs of all animals by foreign blood The experiments thus far reported show that it is possible with the aid of foreign blood-serum to induce parthenogenetic segmentation and development into larvae in eggs which had been found refractory to the other methods of artificial parthenogenesis These facts have more than a tentative importance, and further experimentation along this line will be awaited with interest

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[1] Robertson T B The Extraction of a Substance from the Sperm of a Sea Urchin (*Strongylocentrotus purpuratus*) Which Will Fertilize the Eggs of That Species Jour Biol Chem 1912, xii 1

[2] Compare Robertson T B The Non-Enzymatic Character of Oocytin (Robertson) Jour Biol Chem 1912 xii 16[illegible] also xi [illegible]

[3] Loeb, J and Wasteneys H Fertilization of the Eggs of Various Invertebrates by Ox Serum, Science Aug 2 1912

Current Comment

THE RAT CATCHER

With the plague at our doors the ancient if not specially honored profession of the rat catcher may come again into vogue, at least until science and invention have solved the problem of eliminating the rat altogether In the congested and insanitary cities of centuries ago it is easy to imagine the utility of such a functionary We believe that the profession still exists in most of our larger cities, its representative—a sort of non-criminal member of the underworld—claiming special skill or mysterious professional secrets in his way of working It is not to be doubted that such individuals are better acquainted than the rest of the community with the ways of the pestilent rodents, and the success of some has passed into tradition as little short of marvelous The usefulness of the profession should make it more respectable at this time than it has been considered in the past Boards of health and sanitary authorities might well utilize this class of workers as a temporary means of warding off a threatening crisis like the impending epidemic of plague Catching the rat, to be sure, like swatting the fly, is a lame and unsatisfactory expedient compared with the method of building and starving both out of existence, but so long as such an anachronism as the rat exists, there is no inconsistency in fighting it with a medieval institution like the rat-catcher

RECTAL FEEDING AND ABSORPTION FROM THE LARGE INTESTINE

The growing acquaintance with the preliminary processes involved in the preparation of the food protein as a suitable pabulum for the tissues, during gastro-intestinal digestion, has encouraged the belief among physiologists that the protein is practically completely disintegrated into very simple chemical fragments before absorption and utilization take place The acceptance of this view has brought with it, as a logical consequence, the question as to whether ordinary protein solutions, such as have in the past been administered rectally in the form of nutrient enemas, in reality contribute any nitrogenous components to the organism If it is true that the proteins, as such, fail to traverse the intestinal wall with readiness, it by no means follows at once that they are lost for the purposes of nutrition It is possible that the injected materials may be transported antiperistaltically to those higher regions of the bowel where digestive enzymes are still available to convert them into assimilable products, although this supposition finds little support in the facts of experiment Bacterial intervention in the large intestine may likewise serve to duplicate the normal digestive changes but this can scarcely be looked on as a beneficent type of preparatory alimentary process But even if we assume the existence of such indirect methods of rendering proteins administered by rectum available to the body, it is obviously preferable to furnish the nitrogenous nutrients in some form immediately usable in the intestine For this reason we have heretofore already suggested the employment of completely digested food materials for the purposes of rectal alimentation The rational acceptance of this advice depends, however, on the actual demonstration of the absorption of such products from the regions of the intestine under discussion. Not only must it be made evident that chemical compounds can be absorbed from the large intestine—a fact well known in the case of water, drugs and certain products of putrefaction—but the degree of absorption must be extensive enough to have some adequate quantitative significance for the purposes of nutrition. The evidence here desired is now forthcoming. Recent researches by Folin and Denis[1] leave no doubt that amino-acids like glycocoll and alanin, which may be cited as types of digestion fragments, readily enter the blood-stream from the lumen of the lower bowel. They can be detected in the circulation as they are carried to the tissues in accord with the view elaborated in a previous notice.[2]

PERTUSSIS

In 1905 Bordet and Gengou discovered in the viscid exudate coughed up in pertussis a coccobacillus which stains with weak solutions of fuchsin, is Gram-negative, and grows with some difficulty on ordinary mediums, but more easily on humanized mediums. Bordet injected children exposed to whooping-cough with a vaccine of this organism and, as all developed unusually severe cases, he concluded that a profound negative phase had been produced. By injections of this bacillus Klimenco[3] and Fraenkel[4] were able to produce what seemed like typical pertussis in monkeys. Klimenco also believed that he had produced the disease in young puppies, but these results have not generally been accepted. More recently it has been shown by Inaba[5] that injection of this bacillus in an ape gave rise to a typical whooping-cough, an incubation period of thirteen days being followed by a catarrhal stage of two days, a paroxysmal stage of twenty-four days and a stage of decline lasting nineteen days. After a total period of forty-two days the ape seemed entirely well. The bacillus used was found in seventy-eight of eighty-one cases and was cultivated in sixty-eight of seventy-seven cases in which cultivation was attempted. In eighteen cases of other respiratory diseases the organism was not found. Inoculations of dogs gave negative results. This would seem to be fairly conclusive as to the association of the coccobacillus of Bordet-Gengou with pertussis. On this basis Ladd[6] has prepared a vaccine from the organism in the usual manner, growing the organism on blood mediums, collecting the growth and counting by the Wright method, killing by heat for one hour at 60 C., and testing the sterility by inoculation of culture mediums and of guinea-pigs. The vaccine has been used in a number of cases with results not particularly striking, but nevertheless of great interest. Between injections five days intervened, the author preferring to act cautiously in view of inexperience in vaccine therapy. No harmful results occurred in any instance. In one or two cases there was marked improvement immediately following the first injection. Practically all patients recovered within five weeks after the beginning of the treatment, usually in the third week of the disease. To Ladd this seems encouraging, as he has seen many severe cases of several months' duration. We have, then, good ground for further work in this field. To the various institutions for the treatment of diseases of infancy there is afforded an opportunity for investigation along lines which may prove of great significance in our treatment of whooping-cough.

BLOOD CORPUSCLES OLD AND YOUNG

Precisely as epithelial cells are regenerated when they have been damaged or destroyed, so, it is well known, the red blood-cells can be replaced after they have been lost through hemorrhage or disintegration by various hemolytic agencies. The renewal of the cellular elements of the blood in different types of anemia is a fact of common experience. Is there any physiologic difference, however, between the young and the old red corpuscles? The morphologist at times can discern structural peculiarities in the erythrocytes which may lead him to ascribe developmental changes to them. But even under conditions in which no visible inequalities or perversions of structure are discernible there is chemical evidence that "new" blood is unlike "old" blood. Morawitz[1] and his pupils have noted an increased consumption of oxygen by the blood in anemia in contrast with the blood of healthy persons, and this feature has even been used to estimate the degree of regeneration which is taking place. Dr. Snapper[2] of Groningen, Holland, has used the resistance of the red corpuscles of different bloods as an index of physiologic variations. Comparing the behavior of the corpuscles from blood after hemorrhage with that obtained beforehand, he has observed that the newly formed cells are less easily hemolyzed than the older ones. The young corpuscles formed in the reparation of the anemia are more resistant in this sense. There is, furthermore, some evidence that new red cells can be formed from the components of older ones which have suffered destruction in the vascular system itself. In such cases the resistance of the cells to hypotonic salt solutions may increase despite the lack of change in the number of the cells present, and if one may judge by the phenomena here noted, the reparation of blood cells may quite exceed the actual loss experienced. This is in accord with a familiar principle in pathology. Loss of blood occasions not merely a restitution for what has been removed, but also acts as a stimulus to the hematopoietic system whereby there are formed far more than enough new cells to replace the loss.

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[1] Folin, O., and Denis, W.: Absorption From the Large Intestine, Jour. Biol. Chem., 1912, xii, 253.

[2] A New Theory of Protein Metabolism, The Journal A. M. A., Sept. 14, p. 880.

[3] Klimenco: Centralbl. f. Bakteriol., 1908, xlviii, 64.

[4] Fraenkel: München. med. Wchnschr., 1908, lv, 1683.

[5] Inaba: Ztschr. f. Kinderh., June 17, 1912.

[6] Ladd: Arch. Pediat., 1912, xxix, 581.

[1] Morawitz: Arch. f. exper. Path. u. Pharmakol., lx, [illegible]; Ibid., lxii.

[2] Snapper, I.: Vergleichende Untersuchungen über junge und alte rote Blutkörperchen, Biochem. Ztschr., 1912, xliii, [illegible].

The Supreme Value of Health.—Finally, I have one advice which is of very great importance. You are to consider that health is a thing to be attended to continually as the very highest of all temporal things. There is no kind of achievement equal to perfect health. What to it are nuggets or millions?—Thomas Carlyle.

TEXASALT THE PROFIT SHARING INSULT IN A NEW GUISE

The so-called profit-sharing plan of introducing nostrums to the medical profession still flourishes The usual method in such cases is to offer the physician a bonus for prescribing the nostrum A modification of this scheme is offered by the Texawater Company of New York City This concern markets a product which it calls Texasalt and which it assures physicians is 'Nature's surest cure for rheumatism and all other ailments due to too much uric acid in one's system" The Texawater Company has conceived the idea of working the county medical societies to introduce this product Samples of this company's circular letter sent to secretaries of county medical societies have been sent to THE JOURNAL with comments, of which the following are typical

'After reading THE JOURNAL for several years with great profit to myself I have been impressed with the magnitude and difficulties of the campaign of THE JOURNAL against fraudulent proprietaries I knew that some manufacturers had a low opinion of the profession but the inclosed letter surprises me as an example of colossal nerve'—F Avery Rogers, M.D Plattsburgh N Y"

'This looks like a lovely good thing—but I haven't the nerve to present this letter to our local county society, fearing that the friends of Sal Hepatica et cetera might take umbrage However, while we are boosting the sales of these nostrums why not throw our noble influence on the side of the firm that philanthropically offers to divvy' the spoils?—W B"

The Texawater Company's letter is too long to reproduce in full but the gist of the proposition is this The company is capitalized at $25 000 "divided in equal shares of $100 each One-half of the capital stock—125 shares—is to be set aside "for sale to medical societies whose members will agree to introduce Texasalt among their friends and patrons"

Any society with a membership of fifty or more can easily influence the sale of enough Texasalt through local druggists, to pay for a share of stock during the first month'

As always in such cases, the public gets the worst of the bargain for to quote again

The retail price of Texasalt is $1 00 per bottle of this sum the retailer the society and this company receive 25 cents each while the remaining quarter covers the cost of the product'

Which means of course that the public is to be fooled into paying a dollar a bottle for a simple saline that has no more curative virtue than five cents' worth of Epsom salts and the local medical society is to get a rake-off of twenty-five cents on the deal If a pedler should call at the house of a physician and make a proposition similar to that made by the Texawater Company, the medical man would probably kick him down stairs When the thing is done through the instrumentality of the United States mail, however it provokes nothing stronger than a shrug of the shoulders and the consignment of the offer to the waste-paper basket The reason that such insulting propositions are occasionally made by nostrum exploiters is not that there are a large number of medical men who will listen to them but that there are too many physicians who will n[illegible] that such offers deserve

Medical News

ALABAMA

Medical Scholarships Awarded.—The Board of Revenue on September 2 awarded scholarships in the Birmingham Medical College to Roy Hudnall and Wharton McPherson, Birmingham, and a scholarship in the University of Alabama, Mobile, to Alfred A. Meeks of Birmingham

Colored Professional Men Hold Meeting—The Alabama Medical, Dental and Pharmaceutical Association, which held its annual meeting in Tuskegee the last week in August, has arranged to meet in Opelika in August next year The following officers were elected president Dr I U Com, Birmingham, secretary, E T Belsaw, Mobile, and treasurer, Dr J W Darden, Opelika

Tuberculosis Notes—The Montgomery Antituberculosis League has completed five new cottages at the Fresh Air Camp which are now ready for occupancy Two of these cottages are reserved for pay patients——The opening of a tuberculosis hospital for convicts at the state penitentiary, Wetumpka, was celebrated July 4 with a barbecue The hospital cost $35,000 and was constructed entirely by convict labor

FLORIDA

New Hospital—A charter has been granted for a new hospital to be built in Lakeland The officers of the hospital association are C J Memminger, president, Dr B H Maynard, secretary, and Dr W R. Groover treasurer

Personal.—Drs R R Sullivan, C W Love and William M Bevis have been appointed members of the Board of Health of Lakeland——Dr H R Mills, in temporary charge of the State Bacteriologic Laboratory, Pensacola, returned to his duties in the office of the State Board of Health, Jacksonville, September 1——Dr H A Murphy, St Petersburg is reported to be seriously ill in a sanatorium at Olney, Ill——Dr Abram D Williams and family, Jacksonville are taking a trip through the Pacific states and Alaska——Dr Howard S Holloway, Jacksonville has been appointed pathologist and Dr A. F Conter, Apalachicola, assistant physician at the Florida Hospital for the Insane, Chattahoochee——Dr A F Conter, Chattahoochee, has been commissioned Captain M C, N G Fla——Dr I I Ferris Apalachicola, has returned from an extensive trip through the North and West——Dr J M Spence Sumatra was recently operated on for perineal sarcoma at Rochester, Minn

ILLINOIS

Poliomyelitis at LeRoy—Dr J C Westervelt, Shelbyville, of the State Board of Health, has gone to LeRoy to investigate an epidemic of infantile paralysis Thirteen cases have been reported.

Deplores Publicity—Christian County Medical Society at its September meeting adopted resolutions requesting the newspapers of the county to refrain from using the names of physicians of the county in connection with their cases

Municipal Tuberculosis Hospital.—The Belleville Municipal Hospital for the treatment of tuberculosis will be opened early in October It is situated on a farm three miles south of the city The building now on the site will be used, and tents will also be put up as required

Personal.—Dr Frances P Chapman has been appointed bacteriologist of the Oak Park department of health——Galesburg Medical Society gave a complimentary banquet September 4 to Dr L. R. Ryan who is about to leave Galesburg to make his home in California——The Bi County Medical Association (Iroquois Ford) gave a banquet in Gilman, September 3 in honor of Dr Thomas N Boue, Loda, a charter member of the association

Chicago

Personal.—Dr Frederick Tice is slowly convalescing after an attack of appendicitis for which an operation was performed August 6——Drs Joseph Welfeld and David Horovitz have returned from Europe

Foreign Physicians to Visit Chicago—As outlined in General News August 24 and 31 a party under the auspices of the German Central Committee for Physicians Study Travel will visit Chicago September 29 30 and will be entertained by the local profession at a dinner at the Hotel La Salle

New Building for Hospital—A new building to cost $10 000 will be erected on the site of the Chicago Lying In Hospital at Vincennes Avenue and Fifty First Street The new building will accommodate twenty two free patients, twenty one half pay patients and twenty one full pay patients The new building is largely due to the efforts of the Mothers Aid which was organized in 1904 to promote the best interests of the Chicago Lying In Hospital and Dispensary in its work for educational, civic and philanthropic purposes, and to cooperate with other organizations whenever it seems advisable

INDIANA

Dispensary Asks Increased Appropriation.—Dr Charles P Emerson, dean of the Indiana School of Medicine, Indianapolis, has urged on the mayor of that city that the allowance for the City Dispensary be increased from $12 000 to $18,000

New Hospital for Gary—The Gary Commercial Club has raised a fund of $36,550 for the benefit of Mercy Hospital in that city A hospital to cost $100,000 will be built in the tenement district and will be conducted by the Sisters of St Francis

Negro Physicians Meet.—The fourth annual meeting of the Indiana Association of Negro Physicians, Dentists and Pharmacists was held in Indianapolis, September 5, and the following officers were elected president, Dr A H Wilson Indianapolis, vice president, Dr C A Martin, Muncie, and secretary treasurer, Dr H. W Armistead, Indianapolis

Free Typhoid Serum.—The Indianapolis Board of Health has voted to supply typhoid serum free to all applicants This has been done to prevent the annual fall occurrence of typhoid fever A special bulletin concerning the disease has been issued by Dr J N Hurty, State Health Commissioner, as 125 deaths from typhoid fever occurred in Indiana in August

Hospital Notes—Plans are said to have been completed for the Robert W Long Hospital which is to be connected with the Indiana University School of Medicine It is expected that the hospital will be ready to receive patients early in January——The Indianapolis City Board of Health has decided to have two ward units for the new city hospital constructed immediately and has called for bids

Personal.—Dr J P Simonds, city bacteriologist, has resigned and has assumed his duties as professor of preventive medicine in the University of Texas, Galveston——Dr Klore W Hidy, Indianapolis, has been placed in charge of the rabies work of the State Board of Health——Dr A H Kalbfleisch was seriously injured by being thrown from an automobile at Erie, September 5——Dr A C Yoder, Goshen, has been appointed president of the Elkhart County Board of Charities

IOWA

Personal—Dr M A Beach, Stratford, has recovered from an operation recently performed and has resumed practice——Dr Ira C Brown, Fort Lawton, was slightly injured by the overturning of his automobile, August 27

Honor Departing Colleague.—The Ida County Medical Society gave a banquet August 19 in honor of Dr M R Karterman, Idagrove, for five years president of the society, who leaves soon to reside in Western Washington At the close of the banquet Dr Karterman was presented, on behalf of the society, with a gold watch suitably engraved

LOUISIANA

New Officers.—Attakapas Clinical Society at New Iberia president, Dr John D Hunter, Rayne secretary treasurer, Dr Lambert O Clark, Lafayette

Leprosy—George Jacquin formerly of Gretna who escaped from the leper colony in Iberville Parish several years ago has been discovered in a shanty boat on Bayou Barataria——Three cases of leprosy have been reported from Acadia Parish and the health officer is endeavoring to have them sent to the Lepers Home in Eastern Louisiana

Personal—Dr W H Seeman New Orleans has been appointed bacteriologist of the city board of health vice Dr Paul E Archinard deceased——The dispensary and office of Dr Maurice Bateman near Franklinton were burned September 7——An unsuccessful attempt was made on September 4 to set fire to the home of Dr Theodore Engelbach Grand Isle——Dr C C Chandler president of the Shreveport Board of Health is ill with malaria

Health Train on Trip—Dr Oscar Dowling Shreveport president of the State board of Health started on his annual trip with his health train September 15 He will go through the Southwest and will reach Washington in time for the International Congress on Hygiene and Demography reaching New Orleans on the return trip about October 2. The train will also carry a corps of six lecturers Drs Beverly Smith Franklin T T Tarlton Grand Coteau Herman Oechsner New Orleans C W Caines Tallulah Thomas A Roy Mansura B A Ledbetter New Orleans and E S Kelly, New Orleans secretary of the board

MARYLAND

Typhoid—Six cases of typhoid fever have occurred at the Industrial Home for Colored Girls at Melvale——There are thirty three persons ill with typhoid fever at Towson

Tag Day in Cumberland.—On Tag Day September 4 in Cumberland more than $1 300 was realized for the antituberculosis society The funds will be used for the establishment of a tuberculosis sanatorium

Nurses' Home Presented.—A nurses home has been presented to the City Hospital of Frederick by Mrs Georgia Simmons The building will be sixty four by forty one feet and will adjoin the hospital

Personal.—Dr Francis F Harrington health officer of Cumberland, was seriously burned by an explosion of a gas tank in the laboratory of the City Hall September 10——Dr [illegible] Pitznogle Hagerstown has resigned as health officer of Washington County——Dr Edward N Brush Towson has returned from Europe

Baltimore

Colonial Dames Endow Room—The Margaret Brent room has been opened at the Hospital for the Women of Maryland It is a gift of the Maryland Society of Colonial Dames of America

Lecture Room Equipped.—Mrs John B Thomas has equipped at the University of Maryland a lecture room in memory of her father, the late Dr James H Harris who died two years ago

Psychiatric Clinic Almost Ready—The Phipps Psychiatric Clinic is so far advanced that it is expected it will be ready to receive patients by January 1 next It will be under the direction of Dr Adolph Meyer The clinic is the result of gifts from Mr Henry Phipps of Pittsburgh amounting to $750,000

Personal.—Dr and Mrs C Milton Linthicum have returned from a thousand mile automobile trip through the eastern states——Dr J A [illegible] underwent operation at the Hebrew Hospital recently and is reported to be improving——Major W Guy Townsend M C N G Md surgeon of the Fourth Infantry, has resigned——Dr Benjamin Newhouse resident pathologist at the Hebrew Hospital has been appointed head resident surgeon of the Emergency Hospital Washington D C——Dr W DeForest Olmstead was operated on at the Maryland General Hospital September 11——Dr Sydney Wallenstein has resigned as assistant superintendent of the Sydenham Hospital

MINNESOTA

Isolation Hospital at Biwabik.—Plans have been prepared for a contagious disease hospital to cost $10 000 to be erected at Biwabik

New Open Air Schools.—The Board of Education of Minneapolis has planned to open two new open air schools in Columbia and Glenwood Parks and this action has been endorsed by the park board

Approves Tuberculosis Ward.—At a joint meeting of the St Paul Common Council Conference Committee of the County Commissioners September 10, it was voted that the city appropriate its share of the $75 000 required to build a tuberculosis ward in connection with the City and County Hospital

Personal.—Dr Edmond Lalonde St Paul was thrown from his automobile September 6 and sustained severe injuries to the hand——Dr C C Pratt bacteriologist in charge of the Mankato Branch Laboratory of the State Board of Health has been elected health commissioner of Mankato vice Dr A F Somer resigned

Hospital Liable for Injury—Judge Cant of Duluth is said to have refused to set aside a personal injury verdict given to a woman who suffered the loss of a hand in the [illegible] mangle while employed at St Luke's Hospital The institution had asked that the verdict be set aside on the ground that it is a charitable organization and exempt from liability

Biggs Favors Reorganized Health Department—In a report made by Dr Herman Biggs health officer of New York City at the request of the Civic and Commerce Association of Minneapolis, the following recommendations [illegible] ganization of the health department the creation of a public health board with authority to make and enforce ordinances affecting public health, the appointing of a health commissioner by the mayor, an allowance of $25,000 annually for school inspection civil service for all health department employees, organization of a small health board with legislative repeal and executive powers, more nurses to look after home tuberculosis patients, control of contagious diseases and facilities for treatment of such diseases by the health department, tuberculosis sanatorium under the direction of the department, campaign against infant mortality under the health board auspices modernization of the milk ordinance and the removal of 17 000 outdoor privy vaults

NEVADA

State Association Meeting—The Nevada State Medical Association will hold its ninth annual meeting at Reno, October 8 10, under the presidency of Dr Benjamin F Cunningham, Reno The house of delegates convenes on Thursday October 10, at 1 p m During the meeting Dr O P Ophuls, San Francisco will deliver an address on 'Modern Medicine, Its Present Status and Use for the Future"

Personal—Drs M. A Robison and B F Cunningham, Reno, have been appointed by the governor members of Gov Colquitt's committee to draft bills to present to congress relative to the conversion of military reservations and forts into federal sanatoriums etc Gov Colquitt's plan is to utilize all army posts of the south and southwest as sanatoriums for the treatment of sufferers from tuberculosis

NEW MEXICO

New Hospital for Roswell—Plans are being made for the establishment of a protestant hospital in Roswell to be ready to receive patients this winter

Personal.—Dr William Porter Mills has succeeded Dr H M Smith both of East Las Vegas, as superintendent of the New Mexico Hospital for the Insane, Las Vegas——Dr Fred M Bishop, Santa Fe, sailed for Europe, September 11

NEW YORK

New Tuberculosis Hospital.—The new Tompkins County Tuberculosis Hospital Taughannock Falls, with a capacity of [illegible] patients will be ready for occupancy in a few days Isaac W Brewer Fort Niagara, has been appointed director the institution

Personal.—In a collision between his touring car and a taxicab, Dr J W Bayliss Buffalo sustained severe injuries ——Dr and Mrs C W Hoyt, Rochester, have sailed for Europe——Dr and Mrs Amos F Baker, Riverdale, have sailed for Europe

Demands Legacy for Hospital.—The authorities of St Joseph's Hospital Syracuse have filed a petition in the surrogate's court asking that the executrix of the will of the late Dr Henry D Didama be required to show why the clause which leaves $5 000 to the hospital should not be paid

Board for Feeble-Minded and Defectives.—The State Board of Examiners for Feeble Minded Criminals and other Defectives, created to prevent procreation among that class held its first meeting in Albany September 4 and elected Dr Lemon Thompson Glens Falls president and Dr Charles H Andrews Buffalo, secretary

Gifts to Norwich Hospital.—The directors of the Norwich Hospital Association announce that the hospital will be opened about October 1 The private rooms and wards are to be furnished entirely by the various societies and organizations of the village Dr Joseph D Bryant New York City, has donated a valuable set of surgical instruments to the hospital and the Norwich Nurses Association has equipped the operating room

Contagious Diseases During July—The July report of the State Department of Health shows that there is an increase in typhoid fever throughout the state but a 50 per cent decrease in both scarlet fever and measles There is a slight increase in the number of cases of small pox and in the cases of tuberculosis reported There is a remarkable decrease in the number of cases of diphtheria There have been no deaths due to tetanus following injuries received on the Fourth of July

Medical Care for Inmates of Prisons—Colonel Joseph F Scott superintendent of prisons believing that it is important that the prisoners of the state should have sound bodies if they are to be cured of their criminal tendencies is prepared to put into practice a plan for their treatment He proposes to subject every prisoner arriving at a state prison or reformatory to a thorough physical examination. Defects of hearing vision or other physical impairment that can be remedied by medical or surgical skill will receive treatment by specialists Those who are victims of the drink habit will receive special treatment directed to the cure of the habit

Infantile Paralysis in Buffalo—Reports show that there have been a total of 220 cases of infantile paralysis since the epidemic started a few months ago There have been twenty six deaths and 60 per cent of the survivors have been permanently crippled Dr John Frank Fraser of the Rockefeller Institute of Medical Research has been in Buffalo for the purpose of fighting the disease, but on account of the appearance of the disease in New York has returned to that city

New York City

Rockefeller Institute Appointments—The board of scientific directors of the Rockefeller Institute has made the following appointments Michael Heidelberger fellow in chemistry, Linda Bartels Lange, fellow in pathology, Florentine Medigreceanu assistant resident physician

Endowment Fund Completed—It is reported that a few months ago the University and Bellevue Hospital Medical College received from Mrs Helen Hartley Jenkins the sum of $25,000, which completes the $100 000 endowment fund for the Marcellus Hartley chair of medicine

Health Department Wants More Money—The budget of the Department of Health for the coming year asks for an allowance of $3 086,509, an increase of $1,307,921 over the appropriation for this year The reason for this increase is for the establishment of new positions and to increase the salaries of present employees of the department

Steamship Quarantine—The Italian steamer *America*, from Genoa, was held in quarantine, September 11, because of the discovery of a case of small pox in the steerage The patient was taken to Swinburne Island for treatment and later the steamer was disinfected and 574 of the steerage passengers were sent to Hoffman Island for observation

Degrees Conferred by Fordham College—Honorary degrees were conferred on five scientists by the Fordham University September 12 The degree of LL D was conferred on Drs Henry Head London, Karl J Jung Zurich, and Horatio Robinson Storer Newport R I, and the degree of Doctor of Science on Dr Nicholas Achucarro, Madrid, and Dr Gordon Holmes, London

Drop in Infant Mortality—For the week ended September 7 there were fifty fewer deaths of infants under 1 year of age than for the previous week The actual number of deaths of infants under 1 year of age was 319 as compared with 369 for the week ended August 31 This marks the drop in infant mortality which last year came four weeks earlier The Babies' Welfare Association thinks now that there is no doubt but that last year's record in baby saving will be broken At the end of the week there were 17,652 babies cared for by the association, a decrease of 131 from the previous week

No Leniency for Sellers of Bad Milk.—Out of fifteen persons, mostly grocers and keepers of delicatessen shops and restaurants accused of selling milk that did not come up to the requirements of the board of health, only three were discharged and the fines imposed on the remaining offenders were unusually severe Thirty three milk dealers who entered a plea of not guilty were held for further investigation The New York Milk Committee has urged on the Board of Health the desirability of having grade C, the milk only fit for cooking labeled so that those who buy it for drinking purposes in restaurants and lunch rooms may know just what they are getting

Personal.—Dr James F McKernon has been elected president of the New York Post Graduate Hospital and Medical School vice Dr George N Miller, resigned The other officers of the institution remain unchanged——Dr Simon Flexner has been appointed Huxley lecturer, to speak before the Charing Cross Hospital Medical School in London, Oct 1, 1912——Dr Frederick H Birchard formerly assistant in chemistry at the Rockefeller Institute for Medical Research has been appointed research chemist in the dairy division of the Bureau of Animal Industry, Washington D C——Dr Don R. Joseph formerly assistant in physiology at the Rockefeller Institute has been appointed associate professor of physiology at Bryn Mawr College——Sir Lambert Ormsby M R C S Ireland has arrived in this country He went immediately to Toronto Canada where he delivered a lecture on Imperialism ——Drs William Pincus H C Watson and A A Dutari have sailed for Europe——Dr and Mrs C W Jacoby, Dr and Mrs H J Allen and Dr and Mrs C L

Bailey have returned from Europe——Dr E. L. Roy has been appointed coroner's physician, vice Dr Phillip F O'Hanlon——Dr J Wallace Beveridge, who was operated on recently for mastoiditis, is reported to be making good progress toward recovery

OKLAHOMA

Good Health Tour—The annual good health tours of the state department under the direction of Dr J C Mahr Muskogee, State Commissioner of Health began August 12 The entire state will be covered in these tours, inspections will be made and lectures delivered

Petition Against Indian Hospital—A petition against an Indian hospital at Lawton has been sent to the Interior Department, Washington, by Kiowa and Comanche Indians, who assert that the hospital is not needed and that its erection will be a waste of money

Personal—Dr Felix M Adams, Big Cabin has been appointed superintendent of the Eastern Oklahoma Hospital for the Insane, Vinita——Dr J D Ballard, Oklahoma City has resigned as assistant state auditor and has accepted the position of assistant state examiner and inspector——Dr Albert Beasley, Hobart, had a light stroke of paralysis recently, but is reported to be improving——Dr and Mrs C J Fishman, Oklahoma City, are spending eight months in Europe——Dr W Moore Thompson, Tulsa sailed for Europe August 20, to spend a year in the study of the eye, ear, nose and throat in Vienna

PENNSYLVANIA

Personal—Dr E R Walters director of public health of Pittsburgh, is reported to be ill with small pox——Dr George W Maust, Lock Haven, is reported to be ill with heart disease

Tuberculosis Dispensary Ready—The new quarters of the Williamsport Tuberculosis Dispensary at Pine and Canal Streets has been remodeled and equipped Dr Charles W Youngman is in charge of the dispensary, Dr Robert F Trainer is his associate and Dr Wesley E Kunkle has been added to the staff and placed in charge of the nose and throat department

Typhoid at Allentown.—Typhoid fever was reported from Allentown, September 11 Two deaths have occurred and twenty five persons are down with the disease The epidemic seems to be limited to the fourteenth ward, which is a newly annexed portion of the city The source of the infection has not been discovered An inspector of the State Board of Health has taken charge of the situation

Nurses Fight "Hex" Doctors.—The Visiting Nurse Association of Reading has issued a statement denouncing the witch doctors Several deaths, they claim are attributed to the local practice of summoning these pow wowers" to cure infantile ills It is claimed the association saved the lives of many babies in stepping in and securing the discharge of these so called witch doctors Their statement cites the mothers who have been fooled by these fake practitioners.

Medical Hall Dedicated—The Reading Medical Society dedicated its new home in the old Reading Classical School at the meeting, September 10 Dr Hiester H Muhlenberg read the address delivered by the late Dr Isaac Hiester at the first meeting of the society August 7 1824 Dr Ira C Shoemaker read a paper on Our Society and Its Future' and Dr James Tyson, Philadelphia, president of the Medical Society of the State of Pennsylvania, considered the duties of the medical society to its members and gave reminiscences of some of the physicians who practiced in Reading half a century ago

Philadelphia

Hospital News.—As the site for a rear addition the Kensington Hospital for Women has acquired four three story brick residences at the back of that institution at a cost of $4 000

Charter for Clinical Society—Application has been made to the courts for a charter for The Clinical Society of Philadelphia This body intends to possess a building for offices to hold scientific meetings and to do especially professional work

New Open Air School.—The open air school of the Pennsylvania Society for the Prevention of Tuberculosis began its sessions September 9 on the roof of the Lighthouse a social center at 152 West Lehigh Avenue Twenty pupils have thus far enrolled

To Teach Children Health Methods.—Lectures on practical health and hygiene will be given to 15 000 school children of this city during the year under the auspices of the Pennsylvania Society for the Prevention of Tuberculosis The lectures began September 11 and are given by Dr Howard L Russell

Baby Hospital Closes.—The hospital for babies on the Race Street Pier was closed for the season September 3 During the summer 250 very sick babies were treated and with a very low mortality Dr J D Brittingham acted as chief physician at the hospital being assisted as consultants by Dr J P Crozer Griffith and Edward F Graham

Hope Tuberculosis Colony—The Hope Colony for the treatment of tuberculosis has been established at the end of one of the Independent Pier Company's wharves along the Delaware River More than twenty victims of this disease are being treated here daily with sunshine fresh air and good food Many are treated here preparatory to going to the state sanatoriums others who return from these institutions continue the treatment at this colony The camp is an adjunct of the Pennsylvania State Tuberculosis Dispensary and is under the supervision of Drs A P Francine and R A Torrey

Personal—Dr Walter E Kiefer has had the misfortune to lose his wife to whom he was married June 15 and who died August 7 from acute nephritis——Dr Charles A O'Reilly has returned from his studies in Vienna——Dr R M Palmer a member of the staff of St Joseph's Hospital fell down stairs September 9 and severely injured his right leg——Dr Herbert J Smith has been elected clinical professor of dermatology in the Medico Chirurgical College succeeding the late Dr John V Shoemaker In addition to his new chair Dr Smith is also associate professor of materia medica in the college and professor of materia medica and anesthetics in the dental department

Medical Philadelphia Greets Foreign Guests.—This city and its seaside neighbor, Atlantic City are honored on September 20 21 and 22 by the visit of about 250 distinguished German European scientists Under the auspices of the Central Committee for Physicians Study Travels these physicians government officials etc, are touring America and while in this city are entertained by a committee of the medical profession and other representative citizens A reception to the visitors under the auspices of the Philadelphia County Medical Society is given at the Bellevue Stratford September 21 and a formal banquet by the city on the evening of September 22 at the roof garden of the Continental Hotel The itinerary and personnel of the party were given in General News August 24 and 31

Infant Death Rate Decrease—Statistics compiled by Dr Joseph Neff director of the department of health and charities for the last four years on the education of mothers in the care of their babies show gratifying results Compared with a general death rate of 16 66 in August 1911 the rate last month was 16 23 a decrease of more than 4 per cent in the mortality of babies under 1 year of age and a decrease of 13 4 per cent of infants under 2 years of age This decrease in infant mortality has been constant during the last three years During June July and August 1910 the deaths were 1,888 in 1911 they were 1 467 or a decrease of 421 and in 1912 they were 1 274 or a further decrease of 193 During the same months the mortality of babies under 2 years of age from enteritis was 1,258 in 1910 while in 1911 they fell to 903 a decrease of 355 and in 1912 to 712 or a further decrease of 191 Among the effective agencies in the decrease in infant mortality has been the work of the Chestnut Street Recreation Pier and the Baby Hospital at the Race Street Pier where babies are given medical care and daily classes have been conducted for the instruction of mothers in child hygiene

VIRGINIA

Personal.—Dr B Lawrence Taliaferro has been appointed first assistant resident physician at the Catawba Sanitarium for Tuberculosis Dr Taliaferro took treatment at the sanitarium from April to July during July and August he was substitute assistant physician at the Adirondack Cottage Sanitarium Trudeau N Y and expects to do special work in tuberculosis on his return to Richmond——Dr Allen W Freeman assistant state health commissioner Richmond was operated on for appendicitis August 26 at the [illegible] Hospital Roanoke and is reported to be doing well

WASHINGTON

New Officers.—Washington Association for the Prevention and Relief of Tuberculosis at Tacoma president Dr C Quevli Tacoma, secretary Prof John Weinzirl Seattle

Personal.—Dr Mary McMillan has succeeded Dr Walter [illegible] Nuzum, resigned as a member of the Board of Medical visors of the public schools of Spokane ——Dr and Mrs E M Anderson, Spokane, have sailed for Europe

To Improve Tacoma General Hospital.—Drs W N Kellar, C P Gammon, W D Read, L L Love and G C Wagner have been appointed a committee from Pierce County Medical Association to take up with the trustees of the Tacoma General Hospital the matter of better facilities

Tuberculosis Hospital Authorized.—The board of public works of Seattle has been authorized to construct a tuberculosis hospital and other necessary buildings for use in connection therewith at Richmond Highlands, a site given to the city several months ago by the King County Anti Tuberculosis League, and $100,000 was appropriated for this work.

WEST VIRGINIA

Personal—Dr E S Clovis, Pleasant County, has been appointed superintendent of the State Tuberculosis Sanatorium ——Dr A L Higgins Wheeling, was operated on recently in the Wheeling Hospital

State Sanatorium Soon Ready.—The State Tuberculosis Sanatorium, now under construction near Rinard, Preston County, will be ready for use by November 1 The site consists of 551 acres and three buildings are being erected which will accommodate sixty patients

GENERAL

Tri City Hospital—A gift of 1,000 acres of land has been made by Captain J H Chestman, Iris Miss, to the Tri State Memorial Hospital Memphis The land is believed to be worth at least $50 000

Meeting of Pacific Railway Surgeons—The tenth annual meeting of the Pacific Association of Railway Surgeons was held in San Francisco August 30 31, and the following officers were elected president Dr David Powell Marysville Cal vice presidents, Drs R T Legge, McCloud Cal and S J Gardner, San Francisco secretary Dr G R Carson San Francisco, and treasurer Dr E M Keys Alameda, Cal The association passed resolutions endorsing the Owen bill

Cumberland Valley Physicians Meet.—The Cumberland Valley Medical Association held its tenth annual meeting in Chambersburg Pa September 5, and elected the following officers president Dr Luther H. Keller Hagerstown Md vice presidents Drs S E Mowery Mechanicsburg Pa, ercy D Hoover, Waynesboro Pa and W B Wheeler Boonsboro Md. secretary Dr John J Coffman Scotland Pa (reelected) treasurer Dr Philip R Koons, Mechanicsburg, Pa (reelected)

Missouri Valley Meeting—The Medical Society of the Missouri Valley held its twenty fifth annual meeting in Council Bluffs September 5 6 under the presidency of Dr J M Bell St Joseph Mo The oration in surgery was delivered by Dr Henry T Byford Chicago on Modern Tendencies in Surgery" and the oration in medicine by Dr W O Bridges Omaha on The Present Status of Vaccine Therapy" The following officers were elected president Dr H B Jennings Council Bluffs vice presidents Drs M L Hildreth Lyons Neb and B T Quigley Mound City Mo secretary Dr Charles Wood Fassett St Joseph Mo (reelected) and treasurer Dr Oliver C Gebhard St Joseph (reelected) Kansas City was selected as the next place of meeting

Donations—The following donations have recently been announced

Chicago-Winfield Tuberculosis Sanatorium Wheaton Ill $[illegible]5 000 by Mr Julius Rosenwald for a new administration building

Dr John M Sheller Denver $400 000 by the will of the late Mrs Carolyn Cloth Memphis Tenn.

New York Polyclinic Medical School and Hospital $50 000 for the new building and equipment fund and a legacy of $5 000 by the will of the late David J Garth

Jewish Maternity Hospital New York City $[illegible]000 for the building fund the proceeds of an entertainment recently given at Arverne

New York Eye and Ear Infirmary $[illegible]7 000 by the will of the late John S Lyle

Johns Hopkins Hospital Baltimore a donation of $220 000 from Mr James Brady New York City

Jewish Hospital Philadelphia $1 000 by the late Joseph Netter

St [illegible] Free Hospital New York City $5 000 for the endowment of a bed by the late Mrs Johanna C Jones Baltimore

St Luke's Hospital New York City $10 000 for the endowment of beds to be known as the Henry I Daly beds for actors by the late Mrs Catherine [illegible] Daly

Alexian Brothers Hospital Chicago $1 000 by the will of Simon Mandel

Graduate Education.—A meeting for regular graduate medical education will be held during the International Medical Congress in London in August next by the International Committee for Graduate Medical Education The program [illegible] in its first part reports [illegible] issued as contributions to collective researches concerning the present regular course of medical university instruction and postgraduate education These reports will include the present regular course of university education up to graduation (including examinations) and the legal provisions governing the whole course of study and the relation in which the university education stands to the graduate education and the present condition of medical graduate education The second part of the program deals with the necessity of a reform of instruction in a view to the importance of technical skill in the medical profession, and with the importance of social medicine and its collateral lines as a subject for instruction

Report of Valmora Sanatorium—The second annual report of the superintendent of the Valmora Industrial Sanatorium, Watrous, N Mex, shows that the organization has passed the experimental stage During the greater part of the year less than twenty five patients were at the sanatorium, thus causing a financial deficit, but during the three months that the full capacity of thirty five patients was maintained, the institution was more than self supporting During the year thirty nine employees of members were received as patients, as compared with fifteen the previous year Of these twenty nine were discharged during the year, twenty three of whom are at work Only one employee who went back to work relapsed. During the year the patients have installed a pumping plant, have helped to put up the ice, have hauled all the sawdust from the mill a distance of twelve miles, have hauled coal, kept the grounds in good order, kept fences and sidewalks in repair have taken care of their own cottage carried trays to bed patients, hauled all groceries and supplies from Watrous and have assisted with the gardening The institution is overcrowded and increased accommodations for patients help and officers are needed

The Infectious Disease Situation—Seven cases of plague have occurred in Porto Rico since August 27, making the total number of cases fifty six Plague infected ground squirrels are still being found in California in the country districts outside of San Francisco and Oakland, but none have been found in either of those cities The last case of human plague occurred in California in Septebmer, 1911 Plague is reported from Amoy and Hong Kong, Lower Egypt, India, Formosa and certain districts in Persia and Russia In South America, cases have been reported from Brazil, Chile, Ecuador and Venezuela, also from Trinidad and from South Africa ——Yellow fever has been reported from Merida Mex Manaos and Pernambuco Brazil from Chile, Colombia Ecuador, Peru and Venezuela ——Cholera is reported from Sardinia and the quarantine officers in the United States at ports at which vessels arrive from Italian ports have been instructed to make careful examination of all passengers ——On account of the large number of emigrants from India and Asiatic ports infected with hookworm it has become necessary to place restrictions on such emigration at San Francisco Heretofore on request these emigrants have been examined and treated at the government hospital at Angel Island, 1,300 of such patients have been treated within the past year This has taxed the capacity of the hospital, and the steamship lines engaged in passenger traffic from Asiatic ports have been notified that after Nov 1, 1912 the United States government would cease to permit the treatment of emigrants suffering from hookworm at Angel Island The steamship lines must examine all emigrants on the other side in order to avoid the expense of carrying infected passengers back to their point of embarkation ——On account of the prevalence of trachoma among the Indian children on the reservations in Minnesota, the State Board of Health in cooperation with the federal authorities has begun a vigorous fight against this infection Dr Taliaferro Clark who has made investigations concerning the disease under the direction of the State Board of Health has been appointed by the U S Public Health Service to have charge of the work Physical examination of every child entering the schools will be made and those infected will be properly treated Work will begin first in the schools on the iron range in the northern part of the state where the infection is being carried by the Indians to the white children in the schools ——The presence of Malta fever in the goat raising region in Texas has become of sufficient importance to enlist the attention of the state authorities and the federal Department of Agriculture Secretary Wilson has asked Governor Colquitt of Texas to assist in investigating the disease and providing a remedy It is not known to what extent Malta fever prevails among the goats in Texas but the facts that it is communicable to man and that a number of cases in human beings have already been reported have led to the action above noted It is deemed important to eradicate the disease among the goats even if it is necessary to exterminate all herds infected.——Infantile paralysis is reported from many states, with the greatest number of cases in Buffalo and Los Angeles, the former city having to date 220 cases with 26 deaths On account of a difference of opinion as to the correctness of the diagnosis of the cases in Los Angeles, the city authorities appointed a committee of medical men to investigate all cases.

LONDON LETTER

(From Our Regular Correspondent)

London, Sept 7, 1912.

The Origin and Nature of Life

The British Association for the Advancement of Science has held its eighty second annual meeting at Dundee. The attendance numbered 2,379, including 1,200 visitors President Schäfer delivered an address on the origin and nature of life He said that recent advances have shown the dividing line between animate and inanimate matter to be less sharp than has been supposed Living beings are governed by laws identical with those which govern inanimate matter The most obvious manifestation of life is spontaneous movement, but physicists have shown that precisely similar movements occur in non living substances The movements of oil drops, of organic and inorganic mixtures, and even of mercury globules are indistinguishable from those termed "ameboid" The chemistry and physics of the living organism and of nitrogenous colloids are essentially similar Protoplasm always takes the form of a colloid solution in which the colloids are associated with crystalloids (electrolytes) Enclosing the living substance thus constituted is a film permitting diffusion between the colloid solution constituting the protoplasm and the circumambient medium Other similar films or membranes occur in the interior of the protoplasm These films have specific characters, favoring the diffusion of special kinds of material The changes produced under these conditions associated with those caused by active chemical agents formed within the protoplasm and known as enzymes, effect assimilation and dissimilation Similar changes can be produced outside the body (*in vitro*) by purely chemical and physical methods

Since the initial processes and final results in the transformation of material in a living body are the same as they would be on the assumption that the changes are brought about in conformity with the laws of chemistry and physics, it may be concluded that all the changes in living substances are brought about by ordinary chemical and physical forces The contention that growth and reproduction are characteristic of life is wrong Crystals grow and multiply and reproduce their like, given a supply of the requisite pabulum Even such a complicated process as karyokinesis can be imitated with solutions of sodium chlorid containing a suspension of carbon particles, which arrange themselves under the influence of the movements of the electrolytes. The researches of Loeb show that the fertilization of the egg can no longer be regarded as the result of living matter brought to it by the spermatozoon since it can be produced by a simple chemical reagent

The elements composing living substance are few, and when the chemist succeeds in building up the colloid compound which they form it will without doubt exhibit the phenomena which we call life The evolutionary process is continuous and shows no gap at any part of its course This points to the conclusion that life must have been produced by a gradual change from lifeless material on the borderland between animate and inanimate The last place to look for such change is in hermetically sealed flasks we should look for it under natural conditions. There is no valid reason for the belief that at some previous period the earth was more favorably circumstanced than now for the production of life If living matter has been evolved from lifeless in the past, its evolution is possible in the present and the future At first it must be life of a far simpler character than any that has yet been observed so that if we are able to detect the material we shall be uncertain whether to call it animate or inanimate Probably we shall not be able to visualize it after we have become convinced of its existence

The Love Marriage Advocated on Eugenic Grounds

In his presidential address at the annual conference of the Sanitary Inspectors' Association Sir James Crichton Browne advocated the love marriage on eugenic grounds He said that much more precise information as to the transmission of characters was necessary before any extensive control could be exercised over human mating but even now something might be done by physicians to found a moral sentiment in the community in connection with marriage and the welfare of future generations He believed in the love match not only from the romantic but from the eugenic point of view "Love at first sight" of the right kind was a physiologic epoch corresponding with the installation of new circuits in the brain

Health Certificates for Chauffeurs

The necessity of medical certificates for chauffeurs has been brought forward in consequence of the death of a driver from heart failure while driving a motor car He had suffered from heart disease practically all his life The coroner's jury declared that a medical certificate of fitness should be produced before a license was issued to the driver of a hired car A proposal advanced some months ago that chauffeurs should be periodically examined by physicians at bureaus met insurmountable obstacles and it was abandoned after the Automobile Association had been approached The men themselves did not regard this supervision too kindly The 10,000 licensed chauffeurs of buses and taxicabs in the metropolis are required to hold physicians certificates and for the large majority there is no medical supervision after the license has been obtained A periodical medical supervision after the issuing of a license as well as a preliminary examination is advisable in the public interest

Detention of a Consumptive

Under a recent act a consumptive was for the first time forcibly detained in this country The town clerk of St Helens applied to the magistrate because the health officer certified that a man suffering from consumption lodged with his wife, two children and four other adults in a small house It was impossible under the circumstances to take precautions against the spread of infection An order was made for the detention of the patient in hospital for three months

Tropical Disease in Northern Australia

While tropical diseases are rare in northern Australia the report recently made by the Preliminary Scientific Expedition shows that white settlement is primarily a medical problem As Dr Breinl the director of the Australian Institute of Tropical Medicine, points out the number of deaths due to fever in most instances malarial fever has been high In 1909 and 1910 malaria accounted for 26 17 and 20 per cent respectively of the total death rate Dysentery also accounts for a certain number of deaths and in certain years epidemics have occurred Other diseases such as beriberi ankylostomiasis yaws trachoma and leprosy are not unknown but so far the cases have been for the most part sporadic Despite the tropical climate those residents and their children who care to live a reasonable life taking adequate exercise enjoy good health As yet however there is little if any evidence of the effect of the climate on a third generation Dr Breinl says Life on the stations is ideal from a health point of view The active and mainly outdoor life the comparatively cool and dry winter on the tablelands are all conducive to splendid physical development and robust constitutions The most elementary precautions are not taken against the spread of malaria The conditions in the mining settlements are such that it won't prove a comparatively simple matter effectively to eliminate malaria by kerosening the breeding places of mosquitoes or by removing the mining camps from the rivers where such treatment is not economically practicable

The Campaign Against Tuberculosis

Sir William Osler recommends that under the national insurance act a comprehensive scheme be adopted for coordinating the various agencies which can be used in the struggle against tuberculosis These are as follows (1) a health department at the local government board with lay and professional representation (2) central institutes in London Dublin and Edinburgh dealing with the educational social and [illegible] aspects of the work for research purposes the energies should be concentrated in one large laboratory [illegible] officered by trained men whose work can be supervised [illegible] from the central bodies (4) sanatoriums and [illegible] doctors health officers and nurses [illegible] center about the dispensary [illegible] that provision [illegible] is the [illegible] He [illegible] with the existing hospitals and dispensaries Of this the advantages are many Patients who are not tuberculous will often apply to the dispensary and can be turned over promptly to the proper department Many cases of bone, gland and other forms of local tuberculosis need surgical advice and treatment which patients can receive while attending this special dispensary It is also important that the staffs of the general hospitals should not be deprived of the opportunity of seeing so important a disease as tuberculosis This plan Sir William Osler has found to work well in what he describes as "one of the most successful of tuberculosis dispensaries," which he started by the generosity of Mr Henry Phipps in connection with the Johns Hopkins Hospital This now forms an important part of a great medical school through which every student as a matter of routine passes as a clinical clerk He thinks that before any great outlay is made on sanatoriums the dispensaries should be in full working order, so that in each district the patients needing home and shelter, sanatorium and hospital treatment may be ascertained

A Scheme to Revive Bath by a Radium Syndicate

A scheme to revive Bath, which was famous more than a century ago for the healing properties of its waters and a great resort for fashionable people, has been brought forward As was reported in a previous letter to The Journal, Sir William Ramsay, the distinguished scientist has found that the Bath waters possess remarkable radio active properties The scheme includes leasing the bathing establishment, pump room, antiquities and other properties to the syndicate, which is expected to spend over a million dollars in its development As a result of the publication of Sir William Ramsay's investigations Bath has already enjoyed an appreciable revival of its old time popularity Sir William Ramsay states that the baths contain a quantity of niton or radium emanation, which is more potent than radium He proposes to increase the absorption of the emanation by means of cataphoresis

PARIS LETTER

(From Our Regular Correspondent)

Paris, Aug 30, 1912

Medical Congresses

For some years medical congresses have been multiplying beyond reasonable limits In the *Journal des Praticiens*, Prof Albert Robin discusses their utility and asks whether it would be better to suppress these congresses or merely to reform them What ends should be served by medical congresses? They bring together medical men who do not know each other draw closer the bonds of fraternity among those who are already acquainted promote relations of international interchange by which science cannot fail to profit, and enlarge minds by conflict with other minds Except for these benefits, Robin believes that congresses as held to day except here and there a congress limited to a specialty, have had almost no usefulness No discovery of value has ever been announced at one of them and no question has received even a temporary solution When a scientist has achieved something worth while he does not wait for a congress to make it known for opportunities to publish it are not lacking Moreover the meetings are rare in which papers are discussed and when they are discussed the personalities injected into the discussion obscure the subject almost more than they illuminate it As an example of the scientific inutility of these congresses Robin cites the recent tuberculosis congress at Rome, which was a pretext for personal advertising and for the exploitation of many new and worthless treatments As at present organized congresses accomplish no scientific or practical work Unless they are radically changed it would be best to suppress them Perhaps they are already undergoing a slow death since those physicians who could restore life to them are deserting them more and more Yet Robin believes that medical congresses may be made to serve a useful purpose by revolutionizing the system of management In the first place each congress should have an independent committee of organization which is not a close corporation a condition far too common at present These committees of organization ought to be composed of representatives from various scientific and professional bodies elected because they will devote themselves actively to the organization of the congress In order to have the scientific and practical function which it lacks at present each congress should take a single subject for discussion Independent essayists should sum up the present condition of science on a question and each phase of the question should be the subject of a paper The discussion should take up successively all these papers, each member of the congress bringing to it the results of his researches or his personal observation After each session a summary of the discussion should be made, to be discussed at the beginning of the following session After the session preceding the last one there should be drawn up, from these partial summaries, general conclusions which should be read, discussed and voted on in the last session This would establish the status of the question at the time when these conclusions were drawn and would be a point of departure for further work In this way at a medical congress competent men would concentrate their efforts on a single point instead of scattering them in communications which are chiefly useless or faddish

The Consumption of Alcohol

The *Bulletin de statistique* has just published complete reports on the production and consumption of alcohol in France during the last year, permitting an exact estimate of the alarming progress made by alcohol in all countries The total amount of alcohol produced in 1911 was 2,272,133 hectoliters of pure alcohol This is 21,301 hectoliters more than in 1910 and 63,983 hectoliters more than the average of the ten previous years A part of the alcohol produced is denatured for industrial use, another part is consumed in the form of spirits, brandy, etc In 1911, 1,574,018 hectoliters of pure alcohol (100°) were consumed This figure should be trebled to indicate the volume of alcoholic drinks consumed by the inhabitants of France This figure is the highest that has been attained since 1901 when the tax was laid on alcohol consumed The consumption of alcohol has increased by 11 per cent from 1910 to 1911 The seriousness of the evil may be estimated better by deducing from these figures the average consumption for each inhabitant of France—man, woman or child In 1907 the annual consumption of pure alcohol was a little less than 3 31 liters (about 3½ quarts) It has risen by regular gradations to something over 4 liters in 1911 The departments where the consumption of alcohol has been highest are those of Normandy

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Aug 31 1912

Personal

Professor Heubner, our distinguished pediatrist, will resign his position at the end of the winter semester Next January he will reach his 70th birthday and although he enjoys relatively great intellectual vigor, he feels the justifiable desire to enjoy his leisure with dignity It is rumored that the cultivation of his loved music will play a great rôle in it.

Professor Schreiber of Königsberg has been appointed a regular honorary professor

A change has been effected in the arrangement of the Munich medical clinics to the extent that Prof Friedrich Müller, instead of retaining the second clinic has taken the first left vacant by the death of Professor Bauer, while Professor Romberg from Tübingen comes to take Müller's former place

Regulation of the Sale of Milk in Prussia

The minister of commerce, the minister of the interior and the minister of agriculture have promulgated a decree to the provincial presidents regarding the sale of cow's milk

The decree points out in the first place that in view of the different conditions under which milk is produced and marketed in the different parts of Prussia it is not feasible to impose the same conditions without modifications This is especially true with regard to the regulations for the production of milk and for the trade in choice milk The regulations of the police which have hitherto governed the trade in milk have quite generally laid a one sided emphasis on a definite fat content In addition to this it should be noted that the cleanly production of milk and its freshness are of special importance

Milk should be excluded from sale which is so unclean that when 0.5 to 1 liter is allowed to stand for half an hour in a cylindrical or flask shaped glass vessel made of colorless or nearly colorless glass with a flat bottom, whose diameter is about half the height to which the vessel is filled with milk a readily demonstrable sediment appears on the bottom Milk is not marketable when water or ice or preservatives have been added although an addition of milk ice (*Milcheis*) is permissible to fresh milk and of lab or acid bacteria (*Lab oder Saurebakterien*) to sour milk or sour cream Milk is also to be excluded from sale which is foul smelling, putrid, discolored bloody, slimy or bitter, also that which is milked shortly before or a few days after calving, so long as it coagulates on boiling, or has not the appearance, smell and taste of ordinary milk, also milk from cows whose general condition is markedly disturbed, unless a veterinarian certifies that the milk is marketable.

Milk which does not coagulate on boiling or on mixing with an equal quantity of spirits of 70 per cent. by volume is regarded as fresh. It shall be labeled only as full milk, or skim milk. As full milk shall be reckoned without more exact investigation of its composition any milk which consists of the whole yield, thoroughly mixed, of at least a single milking of at least one cow, which has received no admixture aside from full milk ice and from which nothing has been abstracted, and which contains at least 2.7 per cent. of fat. In this respect in certain localities a higher minimum requirement of fat may be demanded. Full milk whose fat content does not reach 2.7 per cent. is to be labeled as 'full milk of second grade" or as "full milk with less than 2.7 per cent. of fat." All fresh milk in which changes have been made in the fat content may only be labeled skim milk. The minimum fat content, if determined, may be stated.

It is essential that the vessels from which or in which milk is sold should be plainly marked so that the public may at any time be in position to determine that milk of the required kind and composition is being sold. As to the question under what conditions heated milk may be sold as pasteurized or sterilized milk the following may be taken as throwing light on the matter. Milk is to be regarded as pasteurized when it has been heated at least to 70 C. (138 F.). Milk shall be labeled as sterilized only when it has been heated to 100 C. for at least fifteen minutes in vessels the opening of which shall be closed air tight either during the heating or immediately after, and shall be kept closed air tight until delivered to the consumer.

The ministers in their decree emphasize the importance of constant control of the sale of milk in view of the importance of milk as a foodstuff. Such control will give the opportunity for the removal of nuisances. In addition every feasible means should be employed for promoting an understanding of the proper production and handling of milk among farmers, dairymen, milk dealers and the public generally. Instructive articles in the daily papers are especially suited to this purpose in addition to the circulation of the official leaflets on milk.

Association for the Exchange of Anatomic Preparations

In close connection with the German Pathological Society an association for the exchange of anatomic preparations has been formed, which almost all of the German pathologists and a number of foreign pathologists as well as many others have joined. An association for the exchange of anatomic preparations is contemplated for Germany and Europe, similar to that which has for some years been successfully operated in the medical museums of North America. The central bureau of the association is located in the Senckenberg Pathologic Institute (Senckenberg Pathologisches Institut, 229 Gartenstrasse, Frankfurt a. M.). The association has also established a microscopic central station connected with the central bureau, which will collect and preserve in future illustrative preparations in all the important branches of histology. The opportunity will thus be afforded after the lapse of years to reinvestigate and study the descriptions in the literature on the basis of the original preparations. The directors of scientific institutes, clinics and hospitals are asked to support these efforts at collecting microscopic preparations so far as they are able. Histologic preparations illustrating articles which have already appeared will also be gladly received at the institute. The executive committee of the association consists of Fraenkel of Hamburg, Paltauf of Vienna and Aschoff of Freiburg, the chairmen of the German Pathological Society, M. B. Schmidt of Marburg and B. Fischer of Frankfort. The annual dues are 75 cents (3 marks).

Classification of Human Races

At the meeting of the German Anthropological Society, whose proceedings I have already partly reported, Professor von Baelz, the distinguished anthropologist of Stuttgart, delivered an interesting address on the method of classification of the races of mankind. The first scheme was that of the noted botanist Linné, which divided man into the American, European, Asiatic and African varieties. This entirely insufficient and unscientific grouping was followed by that of Blumenbach which designated the Caucasian, Mongolian, Ethiopian, Malay and American races. This also is a geographic but scarcely scientific nomenclature and was replaced by Cuvier by a classification into the white (Caucasian), black (Ethiopian) and yellow race. This classification has been the basis of many later systems but the further the study of anthropology has extended the more the need has been felt of finding exact scientific criteria for a classification of races. Baelz directed attention to the skeleton and especially to the skull, and discussed critically the value of knowledge of the skeleton. He still maintains the assertion he made many years ago that the study of the face was neglected in favor of the skull and the study of the living man in favor of the skeleton. In the examination of fossil man to be sure we must always remain limited to the skeleton but it is doubtful whether the scanty findings and particularly the disjecta membra' in the proper sense of the word are found in sufficient amount to determine different races as has been done. When it is considered how difficult it is in living forms with their greater numbers and with their innumerable individual marks to establish distinct limits of the racial types one cannot be too distinctly warned to be cautious with regard to the skeleton. Even ten years ago there was a disposition to regard primitive man as entirely extinct and different from the men of the present day but it is now certain that not only in Australia but even with us types occur quite similar to those of the Neanderthal man. If the human beings one meets on journeys and in crowds are accurately observed it will be found that such types are much more frequent. But the attempt is made from the scanty diluvial bone remnants not only to construct characteristic prehistoric races but to bring them into quite definite relation to the anthropoid apes on the one hand and to the human race of the present day on the other. The attempt is even made to trace the paths of their migrations.

But the fate of the Neanderthal brain cavity should be a warning. Particularly the projection over the eye, the retreating forehead and the flattened vault of the skull are regarded as an evidence of a lower stage of human development and a correspondingly small brain. When the pithecantropos was discovered and so beautifully fitted to its place the entire series of forms from the anthropoid apes to the European of the present day was presumably established. To the Neanderthal man, 1,200 c.c. of cranial content were assigned and therefore he found his position naturally at the lowest limit of mankind. Now we know that the Neanderthal race in spite of their small stature, had a larger brain than the average of tall and highly cultivated Europeans of the present day, so that all the trouble expended on the measurement of the cranial content, the volume of the brain, was in vain.

Everything warns us to be cautious in osteology. Hasty conclusions have discredited the entire theory of the skull and the skeleton, so that now many ethnologists give it scarcely any value. This is, however, a great error for our knowledge of fossil man depends entirely on this measure and furthermore through the relationship with the parts of the face and their proportions as determined by Broca, Virchow and Kollmann and others and by the newer investigations, particularly of J. Schwalbe and Klaatsch, the examination of bones has been so amplified that it furnishes a number of important factors for the discrimination of the races. Its manifold results appear to be of greater value for the knowledge of races than another physical character which has been of late put very much in the foreground in the classification of races, namely, the character of the hair.

BUDAPEST LETTER

(From Our Occasional Correspondent)

Budapest, Aug. 10, 1912.

Pellagra in Hungary

In 1905 an attempt was made by the government to check pellagra by the distribution of good flour and the instruction of the people in prophylaxis. Bakeries were established in various districts where bread could be obtained at cost. Bad harvests recently have nullified the benefit obtained. More careful examination has revealed the disease in new districts. In 1901 there were 231 cases reported, in 1905 there were 1,575 and in 1909 the number was 2,138. Last year [illegible] pellagra patients were admitted to the hospitals. In eighteen districts last year [illegible] were spent in preventive measures, with the result that 76 per cent. were reported as improved, 22 per cent. not improved, 1 per cent. became worse and 1 per cent. died. Treatment consisted in free distribution of healthy food and quinin and iron. Surgical means were applied where necessary. Sixty thousand dollars has been appropriated by the government this year in order that prophylactic and therapeutic measures may be extended to all the affected districts.

Marriages

Truman Lawrence Saunders, M D, to Miss Elizabeth Corham Bacon both of New York City, at Yarmouthport, Mass, September 5

John Howard Raiter, M D, Harrisburg Pa, to Miss Helen Mathewson of Dauphin, Pa, at Atlantic City, N J, September 3

Dwight Allison, M D, to Miss Ethel Lund, both of Taos, N Mex, at the Lund ranch near Cieneguilla, September 4

William Bernard McGlennon M D, East Newark, N J, to Miss Mary Powell of Washington, D C, September 4

Rand P Crandall, M D, U S Navy, to Miss Hazel Clark Irey of Chicago, at Elizabeth City, N C, September 3

Clark E Congdon, M D Fort Plain, N Y, to Mrs Maria Margaret Sisum of St Johnsville, N Y, September 2

James Thurston Wolfe, M D Washington, D C, to Mrs Mattie Leigh Walker, at Farmville Va, September 7

Jacob Hinden, M D to Miss Myra A. Marvin, both of Strong City, Kan, at Kansas City, Mo, August 27

William Barton Brader, M D, Brooklyn, N Y, to Miss Harriet Hartzog of Wellsboro, N Y, August 31

Charles Newland Slater, M D, Clarksburg, W Va, to Miss Viola Worden of Philadelphia, September 7

Howard J Maldeis, M D, Baltimore, to Miss Louise Cecil Watkins of Arlington, Baltimore, September 7

Ralph M Bolman M D, Fort Wayne, Ind, to Miss Vita McNair of Kendallville Ind, September 4

George Gill Richards M D, to Miss Florence Farnsworth, both of Salt Lake City September 3

Henry C Werner M D to Miss Elsa Elizabeth Mast, both of Fond du Lac Wis September 9

Samuel Robert McKelvey M D, to Miss Lovenia Dell Neel, both of Denver, September 5

Truman Coates M D Oxford Pa, to Miss Deborah Pownall of Christiana Pa September 4

Edwin Lafrett Madden, M D, to Miss Marion Hyman, both of Chicago recently

Harry Jackson M D, to Miss Theresa Wertheimer both of Chicago September 10

Oral Sepsis and Life-Insurance Risks—The relation to life insurance of septic mouths and carious teeth as sources of various infections is discussed by Nodine (*Oral Hygiene*, May, 1912) He says that the weak link in life insurance medical examinations is the failure to appreciate the fact that diseased teeth and gums are a considerable and constant menace to the health of the individual and a dangerous source for the dissemination of disease to others He calls attention to the fact that about 30 per cent of policy holders who die before the age of 30 die of tuberculosis If the mucous membrane of the mouth and gums is in a healthy condition it is almost impervious to infection but when it becomes congested irritated or injured from any number of frequent causes it becomes an avenue of infection The infection may be taken into the stomach or drawn into the lungs or may enter through a break in the mucous membrane, through the tonsils or through carious teeth or infected pulp canals Nodine believes that primary tuberculosis of the mouth is not a rare disease though it is often overlooked He also concludes that the mouth and gastro-intestinal tract constitute a general avenue of tuberculous infection the septic mouth with carious teeth is a center for the insidious dissemination of the disease the constant absorption of pyogenic microorganisms from the mouth and alimentary canal produces toxemias which reduce resistance A number of life insurance companies have undertaken the work of educating their policy holders in personal hygiene and in human conservation Nodine believes that the mouth as a source of infection and consequent ill health deserves the attention of medical examiners and insurance companies in their work of education and of human conservation

Deaths

James Caldwell Willson, M D University of Michigan, Ann Arbor, 1859, a member of the Michigan State Medical Society and a pioneer resident of Flint, Mich, surgeon of the Eighth Michigan Volunteer Infantry during the Civil War, mayor of Flint in 1879, a member of the board of education from 1881 to 1884 and treasurer of the board of trustees of the Michigan School for the Deaf for six years, died at the home of his son, in Flint, August 25, from stricture of the esophagus, aged 79

Charles Thorndike Parker, M D College of Physicians and Surgeons, New York City, 1887, for four years thereafter demonstrator of anatomy and later instructor in operative surgery in his alma mater, formerly attending surgeon to the Chambers Street Hospital, Manhattan Hospital and J Hood Wright Hospital, New York City, who retired from practice on account of ill health, died in his home in South Hamilton, Mass, August 31, from pneumonia, aged 53

George Hultz Cocks, M D Bellevue Hospital Medical College, 1882, of New York City, a member of the American Medical Association and New York Academy of Medicine, secretary of the New York Ophthalmic Society, ophthalmic surgeon at the Institution of Mercy and for many years assistant surgeon to the New York Eye and Ear Infirmary, died at his summer home in Pleasantville, N Y, September 8, from angina pectoris, aged 51

***Elizabeth Hedges Blauvelt,* M D** Johns Hopkins Medical School, Baltimore, 1902, afterward an intern in Woman's Hospital in the State of New York, for six years a missionary in China, and during three years of that time superintendent of the Dutch Reformed Church Hospital at Amoy, died at Saranac Lake, N Y, September 1, from tuberculosis, aged 30

Fremont Swain, M.D Central College of Physicians and Surgeons, Indianapolis, 1884, of Indianapolis, formerly director of physical culture at Lehigh University, while riding a bicycle across the Monon tracks at Michigan Street, was struck by a train and received injuries from which he died September 3, aged 50

Joseph W Lane, M D Queens University, Kingston, Ont, 1874, once president of the Ontario Medical Council, one of the oldest coroners of the province medical health officer of Mallorytown, Ont, formerly reeve of Front of Yonge and a veteran of the Fenian raids, died at his home in Mallorytown, June 7, aged 65

Charles Robert Nyberg, M D Northwestern University Medical School, Chicago, 1911, a member of the American Medical Association, formerly physician on the Indian Reservation at Gila Crossing, Ariz, school physician of Phoenix, died in that city, August 28, from hemorrhage of the lungs, aged 24

Benjamin Bert Putman, M D Washington University, St Louis, 1872, a member of the Missouri State Medical Association and formerly president of the Linn County Medical Society local surgeon of the Santa Fe System, died in his home in Marceline, Mo, July 14, from pernicious anemia, aged 68

Fouman F Tong (license New York, 1908), a graduate of the Imperial Medical College, Tientsin, China, in 1900, also a practicing lawyer, secretary to the Chinese Consul and prominent in the Chinese Republic, died in his apartment in New York City about August 20, from heart disease, aged 3[illegible]

George W Daniels, M.D Cincinnati College of Medicine and Surgery 1871 a veteran of the Civil War, for about forty five years a practitioner of Gerrardstown W Va, a member of the West Virginia house of delegates from 1908 to 1910 died at his home, September 4, from senile debility, aged 71

George Buntin Grober, M D College of Physicians and Surgeons Chicago 1909, a member of the Illinois State Medical Society, formerly of Chicago and later of Kelliher, Minn, was found dead in his room in a hotel in Wadena, September 2 from the effects of an overdose of morphine, aged 24

John Henry Wilson, M D Victoria Medical College Coburg Ont 1858, afterward a professor of anatomy in his alma mater a member of parliament from East Elgin in 1871 1875 and 1882, and later a member of the provincial senate died at his home in St Thomas, Ont, June 4, aged 79

Ernest Smith Bishop, M D College of Physicians and Surgeons New York 1892 a member of the Associated Physicians of Long Island, for many years a practitioner of the Bedford district of Brooklyn died at the home of his brother in Guilford Conn., August 9 from nephritis, aged 46

DEATHS

Frank Wallace Brett, M.D College of Physicians and Surgeons Boston, 1894, a member of the American Medical Association, for several years a member of the board of health of South Braintree, Mass, died in his home in that city, September 1, from cerebral hemorrhage, aged 50

John R. Phillips, M.D Victoria University, Coburg, Ont, 1884, a member of the American Medical Association, a member of the Minnesota house of representatives in 1908, for twenty eight years a resident of Northfield, died in a hospital in Chicago, September 4 aged 50

Hamilton H. Hulcee, M.D University of Louisville, Ky, 1870, a Confederate veteran and for more than twenty five years a practitioner of Louisville died in the infirmary of the Kentucky State Confederate Home Pewee Valley, August 29, from nephritis, aged 66

Joel Williston Wright, M D College of Physicians and Surgeons, New York City, 1866 of Albany, N Y, emeritus professor of principles and practice of surgery in the University of Vermont, Burlington died at his summer home, Lake Placid, N Y, September 2

Charles A. Smith, M.D Minnesota Hospital Medical College, 1888, a member of the American Medical Association, for more than ten years a member of the staff of Asbury Hospital, Minneapolis, died at his home in that city September 1, from nephritis, aged 48

Charles H. Hough, M.D Homeopathic College Hospital, Cleveland, Ohio, 1884, of Champaign Ill president of the Mississippi Valley Improvement Association, died suddenly in Champaign, September 10 from cerebral hemorrhage, aged about 50

Charles Delano Cook, M D Castleton (Vt) Medical College, 1848, a member of the Kings County (N Y) Medical Society, for more than fifty years a dentist of Brooklyn, died at his home in that city, September [illegible] from cerebral hemorrhage, aged 86

Lebanon U Howard, M D Western Reserve University, Cleveland, 1893, formerly a practitioner of Youngstown, Ohio and a member of the Youngstown Medical Association, died at his country home in Rosemont August 30 from diabetes aged 53

Charles H. Foertmeyer, M D [illegible] College of Ohio, Cincinnati, 1872, a member of the [illegible] Medical Association and one of the oldest [illegible] Cincinnati, died at his home in that city August [illegible] bronchitis aged 71

William T Kile, M.D State University of Iowa College of Homeopathic Medicine Iowa [illegible] a member of the Nebraska State Medical Association [illegible] in his office in Plainview, August 31, from cerebral hemorrhage aged 55

Andrew H. McCord, M.D [illegible] College St. Louis 1879, surgeon of the State [illegible] Tex. president of the Young Men's [illegible] died on Irby Mountain, August 29, from heart [illegible]

John A. Chesney, M.D Columbus [illegible] Medical College 1879, a member of the Ohio State Medical Association and local surgeon of the various [illegible] in Bucyrus died suddenly in his office August [illegible]

Solomon F Ballinger, M.D [illegible] Ohio Cincinnati, 1865, a surgeon in the [illegible] during the Civil War, for more than thirty [illegible] of Alliance Ohio, died at his home September [illegible]

Clarence Edgar Carruth, M D [illegible] Vermont, Burlington, 1880, mayor and [illegible] and a member of the school board [illegible] died at his home, August 31 from heart [illegible]

Cyrille Emile Vaillancourt, M D [illegible] 1871, once mayor of St An[illegible] 1896 a member of parliament [illegible] at his home in St. Anselme [illegible]

Alexander Smith, M.D [illegible] 1878 who had previously [illegible] taking morphin hung himself [illegible] Marysville Ohio August 31 [illegible]

George L Calloway, M.D [illegible] cinnati 1892, died in his o[illegible] aged 39, from the effects [illegible] self administered with suicida[illegible]

Ezra Armstrong Hebard, M D [illegible] Pittsfield Mass 1851 for many [illegible] and Kent counties, Mich, di[illegible] ville, N C, September 6 ag[illegible]

[illegible] M.D Medical [illegible]

James C Holloway, M.D Homeopathic Medical College of Missouri St. Louis 1886 of Galesburg Ill formerly elder[illegible] man of the Christian church died after a surgical operation August 25, in a Chicago hospital

Josiah Wayne T'Miller, M.D University of Pennsylvania Philadelphia 1878, for thirty years a practitioner of Ridgeville, Pa, died at his home in Parkerford Pa August 6 from cerebral hemorrhage aged 69

Francis Henry Pope, M.D Western Reserve University Cleveland, Ohio 1854 Victoria University Coburg Ont 1868 died suddenly near his home in Bothwell Ont July 30 from cerebral hemorrhage aged 83

William Thomas Klein, M.D College of Physicians and Surgeons New York City 1895 bacteriologist of the New York Health Department died at his summer home Sea Cliff L I September 7, aged 37

James Cornelius Murphy, M D Harvard Medical School Boston, 1905 a member of the American Medical Association of Norwood Mass died in Carney Hospital Boston September 3 aged 31

Glenn W Rosborough, M D Lincoln (Neb) Medical College 1910, of Cheyenne Wyo died in St Johns Hospital Cheyenne, August 31 from septicemia following an operation for carbuncle aged 25

Benjamin Burkett, M.D Indiana Medical College Indianapolis, 1879, for many years a practitioner of Warsaw Ind died at his home in that city August 28 from senile debility aged 83

John Morrison Ireland, M.D Medical College of Evansville Ind, 1854 for fifty eight years a practitioner of Francisco Ind, died at his home September 3 from senile debility aged 87

Willard Crafts Crocker, M D University of Vermont Burlington 1887 formerly a member of the Massachusetts Medical Society died in his home in Foxboro Mass September [illegible] aged 53

Noah Anthony Wayne Stoker, M D Ohio Medical University Columbus 1897 formerly health officer of [illegible] Ohio, died at his home in that city September 3 aged [illegible]

William Milliken, M.D Jefferson Medical College 1895 many years a practitioner of Nebraska died at his [illegible] near Birdsboro Pa July 27 from heart disease [illegible]

Frederick Roy Branscombe, M D University of Vermont Burlington 1912 of Corn Hill N P died in the Fletcher Hospital Burlington June 24 aged [illegible]

Purnell W Adams, M D Homeopathic Medical College of Pennsylvania Philadelphia 1867 died at his home in [illegible] N J, June 4, from heart disease aged [illegible]

W S Baker, M.D College of Physicians and Surgeons Keokuk Iowa 1870 died at his home in Farmington [illegible] August 15 from disease of the stomach

Albert P Murray, M D College of Physicians and Surgeons Keokuk Ia 1878 a veteran of the Civil War [illegible] home in Albany Ind September [illegible]

William Thomas Bellomy, M.D College of Physicians and Surgeons, Chicago 18[illegible] died at his home in [illegible] Ill. August 18 aged 50

J B Gage, M.D New Orleans School of Medicine [illegible] Board of Health [illegible] Grenada [illegible]

Tobias Campbell, M.D Jefferson [illegible] at his home in [illegible] hemorrhage aged [illegible]

William Charles Al[illegible], M.D [illegible] cal College [illegible]

[illegible] Smith McDonald [illegible]

[illegible]

Henry J B[illegible], M.D [illegible]

[illegible]

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

KELLOGG'S OBESITY CURES AND OTHER FRAUDS

Frank J. Kellogg of Battle Creek, Mich., finds quackery profitable. Starting, it is said, with practically nothing, Kellogg is now rated in the millionaire class and is said to be a director of one of the Battle Creek banks. Kellogg has made his thousands selling fraudulent anti-fat and anti-lean preparations. He has headquarters both at Battle Creek and at Detroit, Mich. From Battle Creek, he sells "Kellogg's Safe Fat Reducer," and "Sanitone Wafers," from Detroit, he conducts the Rengo Company and the Protone Company. Rengo is sold as an obesity cure, Protone is advertised as a flesh builder. As a sideline, the Protone and Rengo companies both sell "Multo Fruto," a constipation cure. All of the Kellogg products are dispensed on the medical mail-order plan by methods that are typical of that class of fakes. Advertisements in newspapers and magazines bring to Kellogg the necessary mailing list, follow-up letters and advertising circulars do the rest.

Greatest Known Vitalizer Known
REDUCE YOUR FAT
50c Box Free
Don't Stay Fat
$1.00 Box Free

Some typical Kellogg advertisements

Sanitone Wafers

Sanitone Wafers are advertised as the "greatest Nerve Vitalizer known" and the reader is advised that a "fifty cent trial package" will be sent free to anyone who applies for it. Those who write for the free sample receive a small box in which are a few orange colored tablets, and by the same mail, a larger box containing a "complete thirty days' treatment" for which $5 is asked. If no further notice is taken of the Kellogg concern, the unwilling recipient of the $5 "treatment" is bombarded with a series of follow-up letters each succeeding letter being more insistent than its predecessor in urging that the money be sent for the treatment. Like all mail-order medical fakers Kellogg has a sliding scale of prices. The first two letters ask $5 for the "treatment" that was sent unasked, the third and fourth letters offer to accept $3.50 while the fifth and sixth letters inform the prospective victim that a mere $2.50 will square the account. The sixth letter ends with the statement "This is final" and, apparently it is, for no further reduction in the price of the treatment is made and neither is the postage sent for the return of the $5 treatment. As it only takes four cents to send the $5 treatment by mail, and as apparently the Kellogg company would lose money by sending that four cents for the return of the treatment that was sent unasked the evident value of this $5 package of pills is less than four cents.

Kellogg's Safe Fat Reducer

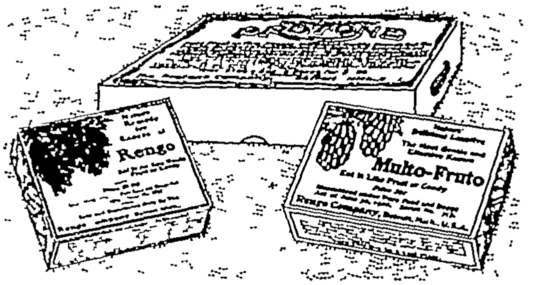
Kellogg's Safe Fat Reducer used to be known as Kellogg's Obesity Food. It is not a food and never was, hence when the Food and Drugs Act went into effect and falsifying became illegal as well as immoral the name was changed. The preparation has been analyzed at various times and its ingredients as reported by Dr. Kebler, Chief of the Division of Drugs of the Bureau of Chemistry, at Washington, were:

Thyroid gland. Poke root. Toasted bread.

Before the Food and Drugs Act became operative, Kellogg's Fat Reducer was sold under the claim that "these tablets are not a drug but a food" and further that the preparation "turns fat into muscle." Both statements were unequivocal falsehoods.

Protone

The Protone Company and the Rengo Company are essentially identical concerns. They are both practically owned by Frank J. Kellogg and both managed by Charles H. Shaw. There is nothing in the advertisements to give any hint as to the connection between the two, in fact, the Protone Company advertises its address as the "Protone Building, Detroit." There is no such building. Both concerns occupy rooms on the third floor of a building at 58 Lafayette Avenue. Protone is advertised as the "best flesh restorer in the world" and is said to be "a new triumph in medical science." Like the Sanitone Wafers, a "free fifty cent package" will be sent to all applicants. With the "free" treatment comes the first of the follow-up letters, which explains that the sample box could not be expected to have any special effect as it invariably takes six weeks' treatment to produce the necessary amount of flesh. The "six weeks' treatment"—six boxes—will be sent for $5. The second follow-up letter is a reiteration of the first and still holds to the price of $5 for six boxes, the third letter cuts the price nearly in half, six boxes for $3, the fourth letter urges you to send in $1.66 for the three boxes, the fifth—and last—letter contains an offer to send twelve boxes for $2.50.



Rengo, Protone and Multo-Fruto come in packages as shown in this picture. Protone is supposed to put on flesh. Rengo is supposed to remove it. Multo-Fruto is a laxative.

It is hardly necessary to say that the business of the Protone Company is a fraudulent one and the product itself is a humbug.

Rengo

Greatly reduced reproduction of one of the Rengo circulars. *(By courtesy of the Committee on Interstate and Foreign Commerce.)*

Rengo used to be known as "Rengo Fruit" and the claim was made that its active constituents were derived from a luscious tropical fruit which grows in clusters similar to grapes. These statements are no longer made specifically although the deceit is still carried out inferentially. The same "free trial treatment" method is used with Rengo as with the other Kellogg products, in fact the method of exploiting Rengo is practically identical with that used in selling Protone. The prospective purchaser is urged to get six weeks' treatment for $5. As time goes by the price is reduced from six packages for $5 to six packages for $3 and finally an offer is made to send three packages for $1.66.

Rengo has been analyzed and, according to Dr. Kebler's analysis, contains:

Thyroid gland.
Poke root.

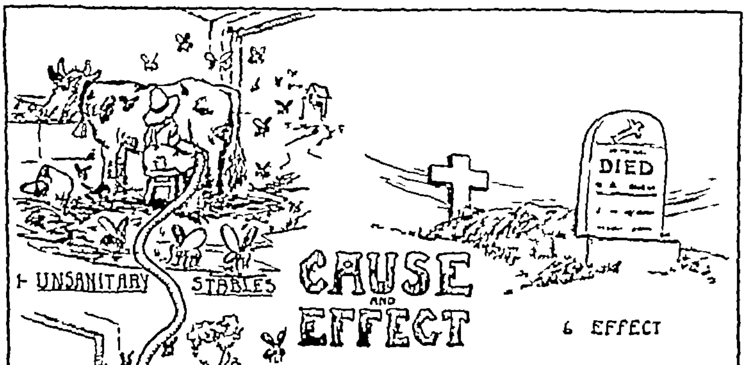
Cascara.
Cassia fistula.

That the prolonged administration of thyroid gland will sometimes bring about a marked reduction in weight is true but its use even under skilled medical supervision is fraught with danger. It is little less than criminal that ignorant quacks of Kellogg's type should be permitted to distribute indiscriminately drugs that have the potency for harm that is possessed by the thyroid preparations.

THE DETERIORATION OF DRUGS

The investigations of Hale[1] on digitalis, of Edmunds and Hale[2] on ergot, and Dohme[3] on calabar bean, coca and aconite, have revealed the facts that many drug preparations deteriorate, and that drugs are often several years old when they reach the patient. These facts have been emphasized also, through a report of the Council on Pharmacy and Chemistry dealing with the testing of epinephrin solutions in which the Council recommends that "manufacturers stamp the age of manufacture on the container, to guard against samples which are obviously overaged." Naturally some manufacturers have asserted that the reported deterioration is accidental, or have tried to put the blame on the pharmacist. Some have shifted their previous claims as to strength in such a way as to avoid responsibility. Some firms, however, instead of attempting to dodge responsibility, are doing what ought to be done, and indicate the date of manufacture on the label of those preparations which are prone to deterioration. This, for instance, has been done by Fairchild Bros. & Foster for their Lactic Bacillary Tablets (N. N. R. Supplement 1912, p. 5), by Hynson, Westcott & Co. in the case of their Bulgara Tablets (N. N. R., 1912, p. 127) and by the H. K. Mulford Co. for their Cernutol (N. N. R. Supplement, 1912, p. 2) and Digitol (N. N. R. Supplement, 1912, p. 3). A serious attempt to overcome deterioration has been made in a recent report by Pittenger and Vanderkleed[4] of the scientific staff of the H. K. Mulford Co., on methods for the preservation of fluidextract of ergot. They found that a fluidextract of ergot put up in hermetically sealed vials, kept its strength for a year without the least change.

While most pharmaceutical houses appear indifferent to the demands of modern medicine, there are signs, nevertheless, that scientific pharmacy is making headway.



AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES,1912-NO.10

Correspondence

Stanley's and Livingston's References to Mosquitoes and Miasma

To the Editor:—On reading "The Mystery of Miasma as Darwin Saw It" in THE JOURNAL (August 31, p. 730), I thought the following from two celebrated African explorers would be of interest in this connection.

Henry M. Stanley ("In Darkest Africa," ii, 33) says in his observations on malaria: "Emin Pasha informed me that he always took a mosquito curtain with him as he believed that it was an excellent protector against miasmatic exhalations of the night."

Dr. David Livingston ("Livingstone's Expedition to the Zambesi and Its Tributaries," 1858-1864) says of the mosquito and malaria: "A large brown sort called by the Portuguese *mansos* (tame) flies straight to its victim and goes to work at once as though it were an invited guest. Some of the small kinds carry uncommonly sharp lancets and very potent poison. What would these insects eat if we did not pass this way? becomes a natural question. The juices of plants and decaying vegetable matter in the mud probably form the natural food of the mosquitoes and blood is not necessary for their existence. They appear so commonly at malarious spots that their presence may be taken as a hint to man to be off to more healthy localities."

ST. CLOUD COOPER,
Fort Smith, Ark.

Fraudulent Impersonation

To the Editor:—In February 1912 Dr. G. J. Albaugh of Salt Lake City, Utah, a graduate of the University of Pennsylvania of about 1908, was approached by a man who gave his name as Dr. F. S. Everhart of the class of 1907 (my graduating class) University of Pennsylvania. Thinking that the man's face was familiar and that he was telling the truth, Dr. Albaugh was persuaded to endorse a draft on a Boston bank for $10 which he had to pay. I have reason to believe that other physicians were swindled, especially University of Pennsylvania men. In order to help in the apprehension of the miscreant and to clear my name [illegible] publish this statement in THE JOURNAL.

EDWIN S. EVERHART, Crabtree, Pa.

Goethe's Reference to Pellagra

To the Editor:—It may be of interest to students of pellagra in this country to know that the German poet Goethe has a curious reference to what appears to be this disease in his "Letters From Italy," written in 1787. [illegible] from the shores of Lake Garda in northern Italy, he says that he was particularly displeased by the pale brownish complexion of the women, whose features indicated wretchedness "I imagine," he continues, "that the cause of this sickly condition may be found in the frequent consumption of Indian corn and buckwheat Both the former, which they also call 'yellow blende,' and the latter, which is called 'black blende,' are ground, made into a thick pap with water, and thus eaten The Germans pull out the dough and fry it in butter The Italian Tyrolese, on the contrary, eat it just as it is, often with scrapings of cheese, and do not taste meat throughout the year This necessarily glues up and stops the alimentary channels, especially with the women and children, and their cachectic complexion is an indication of the malady"

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[1] Referred to editorially in THE JOURNAL A. M. A., April 22, 1911, p. 1198.

[2] Referred to editorially in THE JOURNAL A. M. A., March 9, 1912, p. 705.

[3] Dohme, A. R. L.: Am. Druggist, 1909, lv, 37.

[4] Pittenger, P. S., and Vanderkleed, C. E.: Jour. Am. Pharm. Assn., 1912, i, 799.

I do not pretend to a wide acquaintance with the literature of pellagra so it may be that this interesting note by Goethe may not have escaped the attention of others Goethe has been credited with being ahead of his times in a number of scientific matters, especially the doctrine of evolution, it is therefore additionally noteworthy that he also took a foreglimpse at what many consider to be the cause or one cause of pellagra I think most neurologists will agree that anything that glues up and stops the alimentary channels must be bad for the nerves JAMES HENDRIE LLOYD, Philadelphia

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request

SENSITIZED LIVING CULTURES IN TYPHOID

To the Editor —What is meant by the term sensitized living cultures referred to in the editorial (THE JOURNAL August 24 p 636) in reference to vaccination against typhoid?

HARLAN SHOEMAKER Shelby N C

ANSWER —This term is used to designate live cultures of an organism to which has been added an antiserum, and the mixture allowed to remain in contact for a certain length of time the serum then removed by washing and centrifugation, and the deposit suspended in physiologic salt solution The sensitized living cultures of typhoid bacilli used by Metchnikoff and Besredka for vaccination against typhoid are prepared as follows The growth on a twenty four hour agar slant of typhoid bacilli is washed off in 1 or 2 c c of physiologic salt solution To this suspension of living bacilli are added about 10 drops of antityphoid serum prepared from the serum of a horse which has been highly immunized by intravenous injections of living typhoid bacilli The mixture of serum and typhoid bacilli is allowed to remain in contact over night The next morning the sensitized bacilli are washed twice in physiologic salt solution the centrifuge being used to remove the supernatant fluid After the second washing the deposit in the bottom of the tube is suspended in 100 c c of physiologic salt solution, from 1 to 1 5 c c of this suspension represents the initial dose The second dose given eight days later is 2 or 3 c c The bacilli used by Metchnikoff and Besredka have been isolated from man and are of an average virulence for laboratory animals

PREPARATION OF ACID SOLUTION FOR EXAMINATION OF CEREBROSPINAL FLUID—DIAGNOSTIC VALUE OF TUBERCULIN

To the Editor —1 Please tell me how to keep and how to prepare the acid solution for the cerebrospinal fluid examination described in THE JOURNAL, Aug 17 1912 p 544

2 What is the prevailing opinion if there is any regarding the use of tuberculin both as a diagnostic and as a curative agent? Is there any unanimity of opinion whatever? A B C

ANSWER—1 The solution referred to in the editorial is a 1/300 normal hydrochloric acid solution This would be prepared by diluting normal hydrochloric acid to 300 times its volume If one has an accurate preparation of one tenth normal solution the best way would be to measure exactly 1 c c into a graduated cylinder and fill up with distilled water exactly to 30 c c

2 As a diagnostic agent tuberculin is specific in its action A positive reaction indicates the presence of tuberculosis. It does not distinguish with certainty, however, between an active tuberculous process and one which is latent or practically cured Inasmuch as adults have, in the majority of cases, experienced tuberculosis, a positive reaction to tuberculin gives no positive evidence of an active tuberculous process unless focal symptoms are produced by the subcutaneous injection In children, the cutaneous reaction of von Pirquet indicates, as a rule, an active tuberculous process without affording evidence of the location of the lesion In children over 5 and in adults, a positive reaction may also be due to a latent condition which produces no symptoms and needs no treatment If focal symptoms are produced by the subcutaneous injection of tuberculin, we have evidence of an active process located in the organ which is the seat of the symptoms There seems to be no doubt that in properly selected cases, the therapeutic use of tuberculin is a valuable adjunct to other forms of treatment It must, however, be carefully used by one who is experienced in its application

ALCOHOL INJECTIONS FOR NEURALGIA

To the Editor —Please send me the index of articles appearing in THE JOURNAL on the subject of alcohol injections for neuralgia as well as the names or titles of some works on the subject giving the technic A H STAPLES M D Washington D C

ANSWER.—We do not find any books devoted to the subject As to articles, we might refer our correspondent simply to the index to THE JOURNAL, but as the subject is of general interest we cite the following articles These are found by consulting the index to THE JOURNAL, which is printed in the last issue of each six months

Patrick H T Further Report on Deep Injections of Alcohol for Facial Neuralgia *Lancet Clinic* Dec 28 1907 abstr in THE JOURNAL, Jan 18 1908 p 238

Kiliani O Schlösser's Alcohol Injections for Facial Neuralgia Sixteen Months Experience with Fifty Five Cases Three Failures, *Med Rec* Jan 18, 1908 abstr in THE JOURNAL, Feb 1 1908 p 399

Ostwalt Injections of Alcohol in Neuralgia *Bull de l'Acad de méd* April 21 1908 abstr in THE JOURNAL June 6, 1908 p 1947

Bodine J A and Keller F C Injections of Alcohol for Relief of Trigeminal Neuralgia *New York Med Jour* Sept 26 1908 abstr in THE JOURNAL Oct 10 1908 p 1270

Alexander W Treatment of Neuralgia with Injections of Alcohol *Berl klin Wchnschr* Nov 3 1908 abstr in THE JOURNAL Jan 16 1909 p 253

Harris W Alcohol Injection Treatment for Neuralgia and Spasm *Lancet* London May 8, 1909 abstr in THE JOURNAL June 5 1909 p 1890

Walker R J Trifacial Neuralgia Treated by Alcohol Injections *Jour Mich State Med Soc*, May 1909

Patrick H T Seventy Five Cases of Trifacial Neuralgia Treated by Deep Injections of Alcohol THE JOURNAL Dec 11 1909, p 1987

Leszynsky, W M The Alcohol Injection Treatment of Trifacial Neuralgia *Med Rec* April 30 1910 abstr in THE JOURNAL May 14 1910 p 1646

Offerhaus H K Technic for Alcohol Injections in Trigeminal Neuralgia *Arch f klin Chir*, xcii No 1 1910 abstr in THE JOURNAL Aug 13 1910 p 630

Ball C R Treatment of Neuralgia by Deep Injections of Alcohol *Ohio State Med Jour* Aug 15 1910

The Treatment of Neuralgia with Injections of Alcohol editorial THE JOURNAL June 17 1911 p 1818

Blair V P Notes on Trifacial Neuralgia Treated by Deep Injections THE JOURNAL Feb 4 1911 p 335

Patrick H T The Technic and Results of Deep Injections of Alcohol for Trifacial Neuralgia THE JOURNAL Jan 20 1912 p 155

CRISCO AND THE ALLEGED IRRITANT EFFECT OF COTTON SEED OIL

To the Editor —In an abstract of an article on Soaps and Their Effects on the Skin by F H Gardiner in the *Edinburgh Medical Journal* June 1912 printed in THE JOURNAL (July 27 p 310) it is stated that cotton seed oil is irritant to the skin How about the effect of cotton seed oil on the stomach? I refer to a lard substitute for cooking purposes advertised under the name of Crisco

DR. W L MILNER Cincinnati

ANSWER.—There is no evidence which proves that properly purified cotton seed oil acts differently from other edible oils either on the skin or internally If cotton seed oil is found to be irritant to the skin it will, in all probability, be when it contains impurities While Gardiner, in the abstract of the article referred to says that cotton seed oil uncombined is a skin irritant he admits that it is a matter for further inquiry We understand that Crisco is a solid synthetic vegetable fat made by chemical means from various vegetable oils such as peanut oil, corn oil cocoanut oil and cotton seed oil, depending on market conditions This process is a new industry and consists in converting the liquid olein of fats into the solid stearin by absorption of hydrogen In this reaction each unsaturated oleic radical of the olein is made to absorb through the action of catalytic agents, we are told, 2 atoms of hydrogen, thereby being converted into the saturated stearic acid radical An examination of Crisco by the food department of the North Dakota State Board of Health showed that it bears a close resemblance to cotton seed stearin, although it was not positively identified as such Our laboratory has not yet investigated the product

TEMPERATURE IN CEREBROSPINAL MENINGITIS

To the Editor —I would like an explanation of the peculiar temperature which I have observed in a case of epidemic spinal meningitis At the first visit I found the temperature by mouth 104 5 F and pulse 130 At the second visit within twelve hours of the first the temperature had dropped to 99 8 and the pulse was 125 The patient was comatose with all the symptoms of meningitis. Serum was given and repeated in twelve hours On the third day the patient's condition was good he was mentally bright but the temperature presented the peculiarity that it was higher in the axilla than in the mouth being by mouth 101 by axilla 102 This condition of the temperature lasted three days always higher in the axilla than in the mouth On the sixth day the temperature was 99 4 both in the mouth and in the axilla and from then on was normal The patient made a good recovery

P NETTLE, M D Haverhill Mass

ANSWER —The temperature in cerebrospinal meningitis pursues an irregular course We find no mention of local variations in temperature Such variations, however, are not to be wondered at in view of the irritation of the trophic nerves and the tendency to lesions of the skin manifested in this disease

THE ADDRESSES OF PERIODICALS

To the Editor —It is possible that others have as poor a memory as I and are unable to locate certain magazines in which are wished for articles Would it not be a convenience to run a list? W M

ANSWER.—In our department of Current Medical Literature we give the name of the city after the name of the periodical, and by looking back through a few issues of THE JOURNAL one can usually find the name and address of the periodical In the Guide to Current Medical Literature is printed a list of domestic and foreign periodicals with the street address and the frequency of publication and the price per year This Guide" is a reprint of the index together with the titles that appear in small type from week to week It was described more fully on advertising page 4 of THE JOURNAL, July 13, 1912

THE SAMUELS FAKE

To the Editor —I am seeking some information concerning Prof H Samuels Remedy Company of Wichita Kan They claim to have a cure for epilepsy A patient of mine brought some of their medicine into my office and I want to be able to tell him that the remedy is nothing but a fake

W H LUCKETT, New York

ANSWER.—The Samuels fraud was exposed in THE JOURNAL (Dec. 24, 1910, p 2248), and the matter has been reprinted in Nostrums and Quackery " This impudent humbug has also been the subject of editorial comment in THE JOURNAL (Oct 21, 1911, p 1372, March 23, p 863, and June 1, p 1693)

LIQUID PETROX

To the Editor —In THE JOURNAL (Jan 9 1909 p 130) was an item recommending iodin crystals in saponated petrolatum 30 to 40 grains to an ounce for the treatment of insect bites and stings I have never been able to find any other reference to petrolatum saponatum liquidum and would like to know what it is and how prepared

F D BURKHARD M D Del Agua Colo

ANSWER —Petrolatum saponatum liquidum otherwise known as liquid petrox,' is a National Formulary preparation which is described as a yellow liquid made by shaking together liquid petrolatum 10 parts, oleic acid 5 parts, and spirit of ammonia 2½ parts ' It is practically identical with the preparation known as "liquid vasolimentum

TRIKRESOL

To the Editor —Please inform me what trikresol is I find it commented on in the journals as a powerful germicide in weak solutions

C M GLEINER M D Jacksonville Fla

ANSWER.—Trikresol is described in New and Nonofficial Remedies 1912 p 2[illegible]6 as follows A liquid said to consist of orthocresol 35 per cent metacresol 40 per cent, and paracresol, 25 per cent It closely corresponds to cresol U S P

Cresol is a strong germicide and is the basis of the official germicidal preparation, liquor cresolis compositus

REQUESTS FOR REPORTS ON VACCINE THERAPY IN TYPHOID

To the Editor —Will anyone who has used vaccines in treatment of typhoid in one case or more kindly communicate to me that fact accompanied by name and address of the reporter? If the results have already been reported, a note of the journal in which they appeared will be sufficient If they have not been reported, a short blank form will be sent to the physician to be filled out Due credit will be given in the article to each person making a report If any physician happens to know of confrères who have had any such cases it will be appreciated if he sends their names as they may not happen to read this note It is hoped that by this means a sufficient number of cases may be collected to settle somewhat definitely the now mooted question whether vaccines are or are not of benefit in typhoid therapy

W H WATTERS M D Boston
Director of the Department of Pathology and Bacteriology Evans Institute for Clinical Research

REACTION IN CHILDREN TO ANTITYPHOID VACCINE

To the Editor —In THE JOURNAL (August 31 p 738) is an inquiry regarding antityphoid vaccine in children

In a circular of instructions issued for the guidance of Army surgeons occurs the following reference to the subject This prophylaxis is borne well by children and by women using doses proportionate to the body weight taking 150 pounds as the unit Women should not be given the first dose during or near the time of the menstrual period

We have vaccinated many children some hundreds using doses proportioned to the body weight and find that they have very mild reactions, seldom enough to interfere with their play and the protection given against infection has been absolute so far as I know

F F RUSSELL Medical Corps, U S Army Washington D C

Miscellany

Abnormalities of the Testicles.—An imposing monograph on this subject by R Hofstätter fills the 1[illegible] pages of the last *Klinisches Jahrbuch* xxvi, No 2 It presents the experiences at the surgical clinic at Vienna in charge of von Eiselsberg, and reviews the literature citing 912 articles with summaries of such of the ninety five personal cases as are specially mentioned in the general discussion of incompletely descended or misplaced testicles requiring operative measures Hofstätter noted a familial tendency in a number of cases but malignant disease of an undescended testicle was encountered in only four He remarks that no case is known of permanent cure of cancer of an undescended testicle local recurrence after removal is almost certain Szymanowski who had made a special study of retained testicle and who had published several communications on the subject succumbed himself to multiple metastasis after removal of a cancerous testicle retained in the inguinal region Irritation from a truss seemed a contributing factor in one of Hofstätter's cases a double truss had been worn for years and caused much discomfort sarcoma finally developing The preferable technic for correcting the various abnormalities is discussed and compared with the final outcome in the experience at the clinic The ultimate outcome ascertained in seventy two of the cases, confirms anew the advantages of restricting operative measures to what is actually indispensable and simplest When the patient has other anatomic abnormalities the ultimate result of operative measures is very uncertain Orchidopexy is promising only under the age of 14 and with favorable conditions medical massage a few weeks before and after orchidopexy seems to be a valuable adjuvant Removing the testicle to an intra-abdominal preperitoneal position is advocated as the best treatment when orchidopexy is not possible unless the testicle is too much injured in which case it had better be excised When the testicle is inside the abdomen it can be left unmolested

Work as a Factor in the Cure of Tuberculosis.—[illegible] contributes an article on this subject to the *Zeitschrift für Tuberkulose* 1912 [illegible] 21 He emphasizes the fact that an occupation is an important factor in the treatment and management of tuberculosis He says that patients should not be allowed to go from a prolonged rest in a sanatorium direct to resume their former occupation They should be gradually accustomed to resume work being given some occupation with gradually increasing demands under the supervision of a physician while still in the sanatorium [illegible] should be given each patient otherwise the more energetic will overwork and do themselves more harm than good, while others will fear the effect of any work and shrink from it Accurate observations must be made as to the effect of definite amounts of work on the temperature, pulse, respiration and physical findings in the lungs The kind and the amount of work should be adapted to each patient At the Frimley sanatorium near London the women patients do housework and light work in the garden and poultry yards For the men there are all sorts of outdoor work ranging from the making of mats brooms etc, for the weakest, to the digging of drains and laying of water pipe They mow the grass, saw wood cultivate the ground and sow seed Those going out to a certain employment work at that for three weeks before their discharge Six years of experience have demonstrated that only about 20 per cent of the patients can do the heavier kinds of work In the King Edward VII Sanatorium 75 per cent of the patients with beginning tuberculosis do some kind of work 50 per cent in the moderately advanced cases and 21 per cent in the advanced cases Reexamination of the patients two years after their discharge from the sanatorium showed 76 per cent of the patients still living in the first group 71 per cent in the second, and 35 per cent in the third

Keeping in Touch—Some members of the dental profession in Muskogee Okla placed an announcement in the local papers stating that they would be absent from their offices on certain dates while in attendance on the meeting of their state association The *Journal of the Oklahoma State Medical Association* uses this as a text for some comments on the duty of the medical as well as the dental profession to keep in touch with the progress in their respective lines by attending meetings of their organizations all of which we heartily endorse The *Journal* says These are all busy men and their work keeps them closely confined at home and the fact that they deliberately close up shop for the purpose of attending a dental meeting indicates that they know the value of such meetings We hear so much of the man who is detained at home at the time of the annual meeting by some trivial case often detained not by the case but by the hope of getting him that he is becoming tiresome we also have the man who year after year climbs into the program column yet never delivers himself of the promised paper Society attendance should be one of the sacred duties and also a pleasure of every member it is true there are times when it seems impossible to make the necessary arrangements to attend but usually the greater number of members can arrange some way to be present a part of the time at least Meeting your coworkers in the profession and exchanging ideas is stimulating to better work and increased endeavor and you can all make this year an exception if you are not in the habit of attending be with us you will be the gainer by doing so

Auto Vaccines in Treatment of Cancer—Blumenthal reports encouraging results from his and Lewin's experimental work in this line in the *Zeitschrift für Krebsforschung* 1912 xi 427 He states that the sarcomas in rats retrogressed after treatment with autolysates of their own tumors in 80 per cent and a complete cure was realized in 15 per cent With alien vaccines the proportions were only 35 and 10 per cent Toluol as a preservative has the least destructive action on the effectual substances of the various chemicals tested and the efficiency is retained better when the autolysate is kept in the incubator rather than on ice Blumenthal says that nothing in his experience to date has proved so effectual as this method of treatment on the rats a sarcoma the size of a duck egg seeming to melt away after a single subcutaneous injection of the autolysate The tumors weighed up to 50 gm on rats weighing 150 gm By the end of a week or two they were reduced to a third of their original size after which they subsided more gradually The tumor softens and is gradually absorbed or sloughs away The best results in the clinic to date with auto vaccines have been obtained with sarcomas, Rovsing has reported three cured out of seven patients with inoperable sarcoma Blumenthal keeps the emulsion of tumor substance in the incubator for three days to ensure autolysis In none of his experiments has any tendency to a return of the tumor been observed He has been working along these lines since 1902, his position as chief of the Berlin welfare station for cancer patients and suspects giving him exceptional opportunity for cancer research, and he thinks the time is ripe for the introduction of this autolysate method into the treatment of sarcomas All who have tried the method in any way agree that it is absolutely harmless he reiterates

Sanitary Advice for Summer Tourist—Typhoid fever is a disease which summer tourists frequently contract, therefore it is always well to bear the avoidance of this disease in mind in choosing a summer residence Typhoid fever is a disease of man The germ which causes it leaves the body of the person sick with the disease in his discharges and when these are taken by a well person a secondary case of the disease is caused The germs of typhoid fever are carried from the sick to the well in water and food and by flies and the fingers If one does not take into the system the discharges of another person having typhoid, he does not get typhoid fever At the present time typhoid fever is essentially a disease of the country, because in the country the opportunities for the transference of the germs of the disease from the sick to the well are greater than they are in the city Therefore in the choice of a place to spend the summer one should inquire into the occurrence of typhoid fever in the community in which it is intended to stay, and one should determine the opportunities which exist there for the carrying of the germs of typhoid fever from the sick to the well visitor —W C Rucker in *Pub Health Reports*

Bacteriology of Bathing Pools.—Many investigations have recently been made concerning the infectiousness of bathing pools following epidemics of skin disease or pink eye which seem to have their origin in such pools H F J Porter, in the *Survey* July 27, gives a summary of the results of investigations of swimming pools conducted at various places He quotes Atkins, of the department of bacteriology, Chicago University who tells of five epidemics following bathing in rivers or in pools filled from rivers where sewage contamination exists He also reports that five pools whose water supply was supposed to be clean were the source of cases of eye, ear throat intestinal and venereal diseases, including one epidemic of vulvovaginitis which spread among 236 girls using a school swimming pool Porter says that, as ordinarily conducted swimming pools are little better than cesspools, and clear themselves of bacteria largely on the septic tank principle Investigations of public pools at Hamburg and at Purdue Brown Chicago and Yale universities, as well as of New York public swimming pools show that the impurities are bacterial and chemical Tests made of Hamburg pools showed fifty-seven microbes per cubic centimeter in water fresh from the tap After seventy four persons had bathed in the water it contained 1,800 bacteria per cubic centimeter after 494 persons 64 400, after 829 persons had bathed, only 154 000 microbes were found which illustrates the septic tank principle or the fact that the microorganisms had reached the maximum which the water could sustain At Purdue University the water showed 930 microbes per cubic centimeter after thirty swimmers previously bathed with a soap shower had entered the pool the number increased to 109,200 Another pool first showed thirty five bacteria, increased after bathing to 190 000 and then to 630 000 In this instance also bathing was required before entering the pool The condition of public bathing pools which are largely used and infrequently emptied and cleaned may be imagined and these pools are undoubtedly the source of much contagion The hypochlorite method and the method by the electrolysis of salt have been used for purification in some of the New York pools and at Brown Purdue and Yale universities and the methods has been found to sterilize the water to the extent of at least 98 per cent of the bacteria.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona Phoenix October 7 8 Sec Dr John Wix Thomas.

Colorado Denver October 1 Sec Dr David A Strickler 612 Empire Building

Georgia Regular Atlanta October 8 10 Sec Dr C T Nolan Marietta Homeopathic Atlanta October 8 Sec Dr R E Hinman 106½ Whitehall St Atlanta

Idaho Idaho Falls October 1 2 Sec Dr O J Allen Bellevue

Illinois Coliseum Annex Chicago September 24 26 Sec Dr James A Egan Springfield

Kansas National Hotel Topeka October 8 Sec Dr H A Dykes Lebanon

Michigan Capitol Bldg, Lansing October 8 10 Sec Dr B D Harison 504 Washington Arcade Detroit

Minnesota State University Minneapolis October 1 Sec Dr Thomas S McDavitt Lowry Bldg St Paul

Mississippi Capitol Jackson October 22 23 Sec Dr W W Smithson

Missouri Coates House Kansas City October 1 3 Sec Dr Frank B Hiller Jefferson City

Montana The Capitol Helena October 1 1912 Sec Dr William C Riddell

New Jersey Capitol Bldg Trenton October 15 16 Sec Dr H G Norton.

New Mexico Santa Fe October 14 Sec Dr W E Kaser East Las Vegas

Oklahoma Muskogee October 7 [illegible] Sec Dr John W Duke Guthrie

Rhode Island State House Providence October 3 Sec Dr Gardner T Swarts

Utah Salt Lake City October 7-8 Sec Dr G F Harding 310 Templeton Building

Wyoming Riverton October 9 11 Sec Dr A B Tonkin

Higher Requirements in New York

As has already been stated[1] to obtain a medical student's certificate after Jan 1 1913 qualifying for admission to a medical school in New York State the student must have completed a year's study in physics biology and inorganic chemistry A letter from Mr Augustus S Downing First Assistant Commissoner of Education of New York states that students will not be allowed to carry conditions in these subjects to be made up while they are studying medicine He says this higher entrance requirement means, as one would infer that on and after Jan 1 1917 all applicants for license to practice medicine in that state must have had at least an equivalent education—whether obtained in a medical college in New York or in another state—which must also have been completed prior to entering on medical study Mr Downing says it also means that in 1917 and thereafter New York cannot reciprocate with other states which do not maintain a similar standard

Arkansas May Report

Dr F T Murphy secretary of the State Medical Board of the Arkansas Medical Society reports the written examination held at Little Rock May 14 15, 1912 The number of subjects examined in was 12 total number of questions asked 120 percentage required to pass 75 The total number of candidates examined was 94 of whom 73 passed and 21 failed Three candidates have been licensed through reciprocity since January 1912 The following colleges were represented

PASSED

College	Year Grad	Per Cent
University of Arkansas (1902) 7[illegible] (1912) 7[illegible] 75 7[illegible] 7[illegible] 75.1 76 77.2 77.2 77.4 77.7 78[illegible] 79.4 79.9 80.6 81 81.2 81.6 81[illegible] 82.5 82.6 81.6 82.7 84.2 84.6 8[illegible] 8[illegible] 8[illegible] 88.6 87.2 87[illegible] 8[illegible] 90.3 90.3 90[illegible] 98.3		
Bennett Medical College	(1880)	82.8
Chicago College of Medicine and Surgery	(1912) 82.8	83.4
Barnes Medical College (1910) 77	(1911) 77.7	78.6
American Medical College	(1912) 79.2	8[illegible]
Washington University St Louis	(1912)	91[illegible]
St Louis University	(1912) 8[illegible]	90[illegible]
Bellevue Hospital Medical College	(18[illegible])	87[illegible]
University of Pennsylvania (1910) 80.6	(1911)	8[illegible]
College of Physicians and Surgeons Memphis	(1910)	8[illegible]
University of Tennessee	(1912)	7[illegible]
Memphis Hospital Medical College (1886) 87.2 (1902) 7[illegible] (1912) 75.6 76.3 81.1 81.7 81.7 8[illegible] 8[illegible] 8[illegible] 8[illegible] 84.3 84.6 8[illegible] 88.3		
Meharry Medical College	(1912) 7[illegible] 79.1 80	8[illegible]
Vanderbilt University (1910) 80.6 (1911) 77.5	(1912)	8[illegible]

FAILED

College	Year Grad	Per Cent
University of Arkansas (1911) 71.4 (1912) 6[illegible] 65[illegible] 6[illegible] [illegible] 69.8 71.2 71.6 71.6		
College of Physicians and Surgeons Little Rock	(1910) 41.8	6[illegible]
Barnes Medical College	(1909)	47.8
St Louis College of Physicians and Surgeons	(1908)	7[illegible]
American Medical College	(1912)	6[illegible]
Meharry Medical College (1903) 64.7	(1912) 71.1	71.7
Vanderbilt University	(1910)	7[illegible]
Memphis Hospital Medical College	(1912) 67.8 [illegible]	71.2

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
College of Physicians and Surgeons Chicago	(190[illegible])	Illinois
College of Physicians and Surgeons Baltimore	(18[illegible])	Texas
Creighton Medical College	(1907)	Nebraska

The following questions were asked

ANATOMY

1 Name the bones of the face describing the inferior maxillary 2. Describe the shoulder joint 3 Describe the patella giving muscular and tendinous attachments 4 Give origin and insertion of trapezius muscle with nerve and blood supply Name the parts severed in amputation of leg 4 inches below knee 6 Give the anatomic divisions of the alimentary canal 7 Give name and course of vein involved in varicose veins of leg 8 Describe the circle of Willis 9 Describe the rectum giving nerve and blood supply 10 Give origin and distribution of pneumogastric nerve

PHYSIOLOGY

1 Describe a red blood corpuscle and tell of its functions 2 Describe a white blood-corpuscle and tell of its functions 3 Describe the fetal circulation 4 Describe the circulation through the heart and lungs 5 Describe a cross section of the spinal cord in the mid dorsal region 6 Describe the fifth cranial nerve 7 Describe the large intestine and tell of its functions 8 Name all the known functions of the liver 9 Describe the kidneys and tell of their functions 10 Describe the skin and tell of its functions

PATHOLOGY

1 Define gangrene and name varieties 2 Describe briefly the changes which take place in atrophy and those which occur in degeneration 3 What are usual methods of metastatic extension of sarcoma and carcinoma 4 What conditions are most commonly accompanied with increased blood pressure and what are the results if this increased pressure is maintained for a considerable time? 5 State briefly the pathologic changes found in pellagra 6 State briefly the changes that take place in the entire organism as a result of chronic nephritis 7 What are the principal parts involved in acute anterior poliomyelitis? 8 What are the more common pathologic conditions found in scarlet fever? 9 Give the pathology of chronic gastritis. 10 Give pathology of scorbutus

THEORY AND PRACTICE OF MEDICINE

1 What complication is likely to appear in the last part of the second week and all of the third week of typhoid fever 2 Give (a) physical signs of pneumonia (b) treatment for first stage of lobar pneumonia 3 (a) At what age do patients usually suffer from catarrhal stomatitis (b) Give treatment 4 Give etiology and treatment of acute gonorrhea 5 Give cause and treatment of epidemic cerebrospinal meningitis carefully giving detailed technic of treatment 6 Outline the normal liver dulness 7 Give diagnosis and treatment of measles 8 (a) Give the causes of malaria (b) Name two forms of malarial fever and give the varieties of organisms found in each form (c) Give treatment for estivo autumnal form of malarial fever 9 Give cause diagnosis and treatment of rickets 10 What would you do for pulmonary hemorrhage occurring in the course of tuberculosis

SURGERY

1 What are the causes of ptosis and the remedial measures employed 2 Give the indication and technic of operation for ligation of common carotid artery What surgical landmarks of the elbow joint would aid you by their position in diagnosis between a fracture of the upper end of the radius and a posterior dislocation of the ulna 4 Describe in detail the operation of lumbar puncture What are the indications for this operation Describe amputation at the hip joint Give the method of inserting Wyeth's pins 6 Give etiology symptoms and treatment of psoas abscess 7 Describe the following tumors keloid, papilloma and epithelioma 8 Define coxa vara give causes and symptoms 9 Give indications and contraindications for salvarsan (606) in treatment of syphilis Technic of your method of administration 10 Why do foreign substances such as bullets splinters pieces of glass etc cause suppuration when imbedded in tissues?

CHEMISTRY

1 Give names and symbols of elements in halogen group stating why so called 2 Name three alkaloids of opium most used in medicine giving dose of each 3 Give test for strychnin and treatment for an overdose 4 How is potassium iodid made Give formula Give chemical formula of lunar caustic naming antidote 6 Give chemical composition of urine stating normal amount of urea excreted in twenty four hours 7 What are the enzymes Give their functions 8 What are proteids and from what are they derived 9 What is pyroxylin and how produced 10 Complete the following formula $NaNO_3$ plus H_2SO_4=

BACTERIOLOGY

1 Give the morphology of bacteria 2 State [illegible] obtaining a pure culture 3 What is the difference between active and passive immunity Give example of each 4 What are the [illegible] active agencies by which the body protects itself against the harmful effects of pathogenic bacteria? What is the difference between an antitoxin and a bacterial vaccine 6 What are [illegible] and what do you understand by the [illegible] *Bacillus* [illegible] and state briefly [illegible] differentiate it from the *Bacillus coli communis* [illegible] finding tubercle bacilli in urine [illegible] In what [illegible] 10 [illegible]

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[1] The Journal A M A Sept 7 1912 p 81[illegible]

OBSTETRICS

1 How would you determine the death of a fetus *in utero?* 2 Define abortion miscarriage premature labor 3 Name possible sources of puerperal hemorrhages and treatment of each. 4 Define menstruation age at which it appears the name given to this period of woman's life the age at which it ceases 5 Give the normal duration of pregnancy Give limit of duration from a medicolegal standpoint 6 How frequently must you examine the urine during pregnancy? To what particular normal or abnormal constituents would you pay attention in this urinary examination? In the presence of general edema with albumin and casts in urine which increased in spite of proper treatment what symptom would lead you to bring on artificial labor? 7 What would lead you to suspect extra uterine pregnancy? 8 How would you determine that a dead infant had been born alive? 9 In breech presentations describe the different methods of delivering the after-coming head 10 What are the dangers of traction on the child and placenta?

GYNECOLOGY

1 Give the most common causes of sterility in the female 2 Name the dangers of the use of the uterine sound 3 Differentiate subinvolution rectocele, pyosalpinx, cervicitis metritis vaginismus 4 Describe the technic of catheterization 5 How would you determine whether cancer of cervix is operable or not? 6 What may be revealed by digital vaginal examination? 7 Differential diagnosis of appendicitis and right tubo-ovarian disease? 8 Give symptoms of acute pelvic peritonitis? 9 Give diagnosis symptoms of carcinoma of the breast 10 Mention three pathologic types of endometritis.

MATERIA MEDICA

1 Define an aperient and give an example 2 Define a vascular contractor and state uses. 3 Define a vascular dilator and state what drug you consider the most valuable as such. 4 Define a solvent and excipient and give an example of each 5 What is meant by the physiologic effect of a drug 6 Name and give dose of the most powerful hydragogue cathartic. 7 Name the three most used preparations of opium and state how much of each represents 1 grain of opium 8 Give primary and secondary effects of carbolic acid when locally applied 9 What change takes place in morphin after having been kept for some time in solution? 10 Name the principal remedy used to promote the absorption of morbid products

THERAPEUTICS

1 Differentiate between materia medica and therapeutics. 2 Differentiate between empirical and rational therapeutics 3 What is meant by suggestive therapeutics? 4 Name a remedy that is especially indicated in the stage of resolution of pneumonia. 5 Name objective and subjective symptoms of phenol poisoning 6 How would you treat such a case? 7 Name an antidote for each of the following and state whether this is physiologic or chemical arsenic opium, copper and strychnin 8 What therapeutic agent liberates formaldehyd in the urine? State in what class of cases it is indicated? 9 In case of sudden collapse name the quickest and most efficient remedy and give its mode of administration 10 Describe the technic in the administration of antimeningitis serum

HYGIENE

1 Describe a thoroughly safe method of disposing of sewage in the absence of water works 2 Name the diseases carried by infected water 3 Define epidemic endemic and pandemic diseases 4 What precautions should every consumptive take to prevent spreading the infection? 5 What are the practical necessities of pure food and drug laws? 6 What are the effects of chronic alcoholism? 7 Give full directions for nursing a case of typhoid fever to prevent its extension 8 Define disinfectant germicide 9 Give full directions for ventilating an ordinary bed room 10 What is the most common cause of blindness in young children and how is it to be prevented?

Illinois June Report

Dr James A. Egan secretary of the Illinois State Board of Health reports the written examination held at Springfield, June 13-15 1912 The number of subjects examined in was 10 total number of questions asked, 100 percentage required to pass 75 The total number of candidates examined was 212 of whom 158 passed and 51 failed Three candidates did not complete the examination. The following colleges were represented

PASSED

College	Year Grad	Total No Examined.
Bennett Medical College	(1911 1) (1912 [illegible])	4
Chicago College of Medicine and Surgery	(1912)	33
Hahnemann Medical College and Hospital Chicago	(1912)	10
Hering Medical College	(1912)	1
Northwestern University Medical School	(1911 1) (1912 41)	42
Rush Medical College	(1912)	13
College of Physicians and Surgeons Chicago	(1911 1) (1912 36)	37
Kentucky School of Medicine	(1903)	1
University of Michigan Dept of Med and Surg	(1912)	1
American Medical College	(1912)	2
St Louis University	(1912)	7
Washington University St Louis	(1912)	5
Vanderbilt University	(1912)	1
Milwaukee Medical College	(1912)	1

FAILED

College	Year Grad	Total No Examined.
Bennett Medical College	(1912)	1
Chicago College of Medicine and Surgery	(1912)	[illegible]
College of Medicine and Surgery Physio-medical	(1908 1) (1909 1)	2
Hahnemann Medical College and Hospital Chicago	(1912)	[illegible]
Hering Medical College Chicago	(1912)	1
National Medical University Chicago	(1910)	1
Northwestern University Medical School	(1912)	2
Reliance Medical College	(1911)	1
Rush Medical College	(1912)	1
College of Physicians and Surgeons Chicago	(1911 2) (1912 10)	12
University of Louisville	(1912)	2
American Medical College	(1912)	8
Barnes Medical College,	(1906 1) (1910 1) (1911 1)	3
St. Louis College of Physicians and Surgeons	(1910)	1
St Louis University	(1912)	2
Meharry Medical College	(1908)	1
Milwaukee Medical College	(1912)	2
Queen's University, Ontario	(1912)	1

Book Notices

TUMORS OF THE JAWS By Charles Locke Scudder M D, Surgeon to the Massachusetts General Hospital Cloth Price $6 net Pp 391 with 353 illustrations Philadelphia W B Saunders Company 1912

While the author has made use of all available general medical literature in the study of this subject, the basis for the monograph is a study of the clinical material at the Massachusetts General Hospital When it is remembered that tumors of the jaw are not so very frequent, the material at the author's disposal is sufficient to be of considerable value One of the chief merits of the work is the clear and concise manner in which the author has recorded the facts The case histories are brief but ample for the purpose One cannot read the case histories and note the illustrations without being struck by the great frequency with which procrastination has led to the destruction of the patient Tumors are allowed to grow for months and even years until they produce the most hideous deformities of the jaw and face and become inoperable, or if operable leave a condition after the operation almost worse than death How long is it going to take the people and particularly the profession, which after all is largely to blame, to learn that there are no good tumors and that all tumors are pathologic and should be removed as soon as possible? If those who read this excellent little volume—and the number should be many—could only learn this simple lesson from it the author might well feel repaid for his efforts

THE TREATMENT OF SHORTSIGHT By Prof Dr J Hirschberg, Geh Med Rat in Berlin Translated by G Lindsay Johnson, M D F R C S Cloth. Price $1 25 Pp 123 with 12 illustrations New York Rebman Company 1912

This is a translation of a lecture on myopia by Professor Hirschberg It contains a multitude of interesting facts largely based on the experience of the author, and will be read with interest by all ophthalmologists As a guide to the treatment of myopia, however, it will not be seriously considered by the large majority of Americans We are not able to make satisfactory studies of our cases without mydriasis We have learned that astigmatism is an important factor in the production of myopia, and that it cannot be accurately corrected, even in myopes, without complete cycloplegia If one had not seen the refraction work of the great German clinics, the following statement (p 17) would seem almost unbelievable 'In the first place the amount of myopia, especially in young subjects, can easily be overestimated. The exact objective measurement by means of the ophthalmoscope, which is the best method to begin the examination with, ought entirely to prevent this error In the same way the determination of the astigmatism can be made at the same time by this means"

The following quotation discloses a practice entirely at variance with our experience and seems equally archaic (p 20) In medium degrees of myopia (from 3.5 to 6 D) entirely or nearly corrected glasses are only to be used for distance purposes, while for near work weak glasses or none at all should be given Occasionally Franklin's or other bifocal glasses may be prescribed In the higher grades of myopia (6 D and upward) two separate pairs of glasses should invariably be given, one pair for distance, and another weaker pair for near work The last should possess about half the power of the former, or a little over '

In this country it is our custom and has been for many years, to make our patients as nearly emmetropic as possible We have made no exception of the high myope, and have found that by accurately correcting his astigmatism, and not overcorrecting his myopia, we have made him comfortable We feel confident that those who have had Hirschberg's experience in the full correction of myopia have ignored astigmatism, overcorrected the myopia, and given too little consideration to the muscle balance

We are much disappointed to find no reference to American literature

GASTROSCOPY With a Description of a New Easy and Efficient Method of Esophagogastroscopy Combining Direct and Indirect Vision and a Plea for Its Employment by Gastric Experts By William Hill B Sc M D Surgeon for Diseases of the Throat Nose and Ear St Mary's Hospital London Cloth Price 3 shillings 6 pence net Pp 46 with 47 illustrations London John Bale Sons & Danielson 1912

Hill has written a monograph on gastroscopy and esophagoscopy in which he recommends strongly the combination of direct and indirect or periscopic vision in gastric work His latest apparatus consists of a Killian esophagogastroscope which he has modified so that it can be inflated, and a Heymann indirect periscopic tube 9 mm in diameter and 70 cm in length, which is passed through the Killian tube He advises in addition that the operator have at hand as a matter of convenience two outer tubes both 60 cm in length, one being oval in section with diameters of 13 and 15 mm and the other a thicker one, circular in section with a diameter of 16 mm The new principles involved in the procedure are the direct esophagogastroscopy under inflation and the combination of direct and indirect vision methods by passing the indirect vision periscope through the esophagogastroscope General information as to the position of the patient, anesthesia, etc, is given, and considerable space is devoted to the appearance of the gastric walls in various diseased conditions The work is well illustrated and a complete bibliography of gastroscopy is appended

GONOCOCCAL INFECTION By Major C E Pollock Royal Army Medical Corps and Major L W Harrison Royal Army Medical Corps Cloth Price $2 Pp 222 London Henry Frowde 1912

This book covers the main features of our present clinical knowledge of gonococcal infections The authors discuss the older established methods of treatment and the recent developments in our knowledge of gonococcal immunity

The characteristics of the gonococcus and the pathologic changes which it causes in the body tissues are taken up Methods of treatment are outlined in a practical way, each being fully described and its therapeutic value discussed The specific treatment by vaccines is advised especially for the prevention or cure of complications There is a full explanation of the primary anatomic lesions and complications by extension and general infection They are separately and fully discussed, with suggested treatment in each instance

The book is designed for the practitioner who wishes a general up to date knowledge of the infections by the gonococcus The thorough discussion of treatment is perhaps the most prominent feature

KLINISCHE BACTERIOLOGIE UND PROTOZOENKUNDE Von Dr Julius Citron Assistenten der Medizinischen Klinik der Universität Berlin Volume X Paper Price 6 40 marks Pp 172 with 63 illustrations Leipsic Werner Klinkhardt 1912

The work is a brief concise, yet comprehensive treatise on pathogenic bacteriology written with special emphasis on the practical side of the subject as seen in the large medical clinics of the University of Berlin The author gives importance to points which pertain to diagnosis and describes in detail such technical methods as are of practical value Questions of a purely scientific nature and methods which have no clinical usefulness are given little attention The work is fully illustrated and contains a number of colored plates in which much care and pains have been used to reproduce faithfully minute details of form and color The last four chapters are devoted to a consideration of the pathogenic organisms of higher order, including amebas plasmodia spirochetes trypanosomes and other protozoa The work can be heartily recommended as a practical handbook of clinical bacteriology

Society Proceedings

COMING MEETINGS

Amer Assn for Study etc, of Infant Mortality Cleveland Oct 2-5
American Association of Railway Surgeons Chicago Oct 16-18
Assn of Military Surgeons of the United States, Baltimore Oct 1-4
Clinical Cong of Surgeons of North America New York Nov 11-16
Colorado State Medical Society Pueblo Sept 24-26
Delaware State Medical Society Wilmington Oct 8
Indiana State Medical Association Indianapolis Oct 9-11
Internat Congress on Hygiene etc Washington D C Sept 23-28
Kentucky State Medical Association Louisville Oct 29-31
Medical Association of the Southwest Hot Springs Ark Oct 8-10
Mississippi Valley Medical Association Chicago Oct 22-24
National Association for Study of Pellagra Columbus S C Oct 3-4
Nevada State Medical Association Reno Oct 8-10
Pennsylvania State Medical Society Scranton Sept 23-26
Southern Medical Association Jacksonville Fla Nov 12-14
Utah State Medical Association Ogden Sept 24-25
Vermont State Medical Society Montpelier Oct 10-11
Virginia Medical Society Norfolk Oct 22-25

Medicolegal

Liability of Manufacturers for Ptomain Poisoning

(Roberts vs Anheuser-Busch Brewing Association (Mass) 98 N E R 95)

The Supreme Judicial Court of Massachusetts holds that this case brought to recover damages for alleged ptomain poisoning from a bottle of Malt Nutrine whereby the plaintiff's wife was made ill and his young son died should have been submitted to the jury instead of a verdict being directed for the defendant The form of action was what is called in tort or for a non contract liability and not for a breach of warranty As there was no contractual relation between the plaintiff and the defendant the Malt Nutrine having been purchased from a druggist the action against the defendant could not be maintained on the ground that there was any warranty by the defendant of the good qualities of its mixture There cannot be a warranty where there is no privity of contract

There was evidence that the defendant had by advertisements represented that its mixture was healthful free from all injurious substances beneficial to women and children and to those needing strength and nourishment and that it was compounded with great care These representations could be found to have been made as of the defendant's own knowledge It could be found that the plaintiff had seen some of these advertisements and the court cannot say that the jury might not have found that his purchase of a bottle of the mixture was on the faith of and in reliance on these representations There was also evidence, although meager tending to show that this bottle had been put on the market by the defendant and had come from it through a wholesale dealer to the druggist who sold it to the plaintiff It also could be found that the sickness of the plaintiff's wife and child was due to ptomain poisoning caused by the contents of this bottle though as to the last point it was true that the evidence was but meager Still it was for the jury to pass on If this sickness was due to ptomain poisons contained in a bottle which had come from the defendant there was evidence of the falsity of its representations

If these facts were found in accordance with the plaintiff's contention there might have been a verdict in his favor If the defendant made such representations as of its own knowledge and put its mixture on the market to come through wholesale and retail dealers to the ultimate consumer who in reliance on such representations bought and [illegible] the mixture in the manner intended by the defendant the representations must be regarded as continuing and intended to be accepted and relied on by all who finally should purchase the article for their own [illegible] The [illegible] has been declared

It was claimed [illegible]
given an [illegible]

was or might have been so long out of the possession of the defendant that its representations ought to have been regarded as no longer in force when the plaintiff made his purchase. There may be a lapse of time after which this fairly could be maintained, but it cannot be held as matter of law that such was the case here. The bottle was corked with a stopple which had to be pulled out by the plaintiff after the seal over it had been removed by his wife. This would indicate that any outside contamination had been guarded against and might tend to relieve a purchaser from any fear of such contamination. This contention presented only a question of fact.

Death From Traumatic Erysipelas

(Caldwell vs. Iowa State Traveling Men's Association (Ia.), 136 N. W. R. 678)

The Supreme Court of Iowa affirms a judgment for $5,000 accident insurance holding that the death of the assured was caused solely by external, violent and accidental means, where the immediate cause of his death was erysipelas, and the beneficiary contended that the assured received a slight accidental injury on his cheek causing a slight abrasion of the skin which resulted in traumatic erysipelas. The attending physician testified to the discovery of the abrasion of the skin. He also testified that in his opinion the disease from which the assured died was wholly infectious, and could not have resulted except through infection of some wound or abrasion of the skin; that it made its first appearance at the edges of the alleged wound, and that in his opinion it resulted solely from the infection of such wound. This testimony was corroborated by other medical testimony. The court holds that this evidence was sufficient to sustain a finding that the death of the assured was the proximate result of the wound or abrasion referred to. It also holds that the appearance of the wound would clearly support the finding that the cause of the wound was violent and external, while it has been repeatedly held that in the absence of direct evidence on the subject a presumption arises that the wound was not intentionally inflicted either by the assured or by another. This presumption is almost the equivalent of a presumption that the wound was inflicted through accidental means, although the authorities stop short of announcing the presumption in this latter form, but simply hold that the presumption first stated is available to the plaintiff as affirmative evidence, and that an inference may be drawn therefrom by the triers of fact that the wound was caused by accidental means as the only other alternative.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

September, CXLIV, No. 3, pp. 313-468

1 *Endocardial Lesions of Subacute Bacterial Endocarditis. E. Libman, New York.
2 Glomerular Lesions of Subacute Bacterial Endocarditis. G. Baehr, New York.
3 Relation of Hypertension to Urinary Excretion. C. H. Lawrence, Boston.
4 *Brain Lesions Produced by Electricity as Observed After Legal Electrocution. E. A. Spitzka and H. E. Radasch, Philadelphia.
5 Hospitals and Typhoid Carriers. J. W. Brannan, New York.
6 Therapeutic Use of Vaccines in Typhoid. J. G. Callison, New York.
7 Stenosis of Duodenum: Statistical Study With Report of New Case. J. M. Anders, Philadelphia.
8 Complement Fixation Test in Differential Diagnosis of Acute and Chronic Gonococcal Arthritis. H. J. Schwartz, New York.
9 Critical Commentary on Free Eye Infirmary With Suggestions as to Reforms in Ophthalmic Hospitals, Dispensaries and Schools. H. V. Wurdemann, Seattle, Wash.
10 Treatment of Locomotor Ataxia. J. R. Hunt, New York.
11 Tuberculin Therapy in Surgical Tuberculosis. C. W. Hastings, New York.

1. **Endocardial Lesions of Subacute Bacterial Endocarditis.**—Seventy-eight cases of subacute bacterial endocarditis have been studied carefully by Libman. Blood cultures were made in seventy-five of seventy-eight active cases. The other three cases were typical clinically; one patient passed out of observation and the other two died, autopsies not being obtainable. Organisms were recovered from the blood of seventy-three of the seventy-five cultured cases. In seventy-one cases the cocci characteristic of the disease were obtained, and in four the influenza bacillus. The symptoms and lesions found in the latter group were practically the same as those found in the former, except that thus far the glomerular lesions in the coccus cases have not been discovered in the kidneys of the influenzal cases that have come to post mortem examination. There were two supposedly active cases in which the blood cultures were negative. Besides the seventy-seven active cases, Libman has observed eleven cases which he believes belong in the group of subacute bacterial endocarditis, but in which the lesions were found free from pathogenic bacteria. In ten of the cases blood cultures were made during life (in a few anaerobically), and no bacteria were found. In one case as many as nine cultures were made during a period of ten months, all with negative results.

A study of frequency of involvement of the valves, the left auricle and the chordæ in the hearts from thirty-four cases of the disease in which the blood cultures were positive during life was made with the following results:

Auricle, mitral valve, and chordæ	17 cases
Auricle, mitral valve, chordæ and aortic valve	5 cases
Auricle and mitral valve	2 cases
Mitral valve and chordæ	1 case
Aortic valve only	3 cases
Aortic valve, chordæ, and aortic flap of mitral	4 cases
Mitral valve, chordæ and aortic valve	1 case
Auricle, mitral and aortic valves	1 case
Total	34 cases

The auricle was involved twenty-five times, the mitral valve twenty-seven times, the chordæ twenty-eight times and the aortic valve nine times. These eleven cases, Libman believes, are cases in which patients who had a subacute bacterial endocarditis overcame the infecting agent without their having been seen at a time when the infection was still active. In one poorly staining cocci were still seen in small numbers in part of the lesions. In seven of the cases the mitral valve was involved in a way seen practically only in subacute bacterial endocarditis. In the remaining three cases only the aortic valve was involved and in it large calcareous lesions were found. In all of these he has the proof afforded by the presence of the glomerular lesions that they were almost surely the result of infections by the endocarditis coccus.

2. **Glomerular Lesions of Subacute Bacterial Endocarditis.**—In the kidneys of nearly all individuals dying during the course of subacute bacterial endocarditis Baehr says, there exists a pathologic lesion which affects one or more loops of a variable proportion of the glomeruli. The number of involved loops of a glomerular tuft varies in the different diseased Malpighian bodies. Furthermore there is a great variation in the relative number of glomeruli involved in different parts of the kidneys. The uninvolved loops of involved glomeruli show no changes. The very earliest stage of the process appears to consist of a swelling of the glomerular epithelium in the involved loops. This may be situated at any portion of the glomerular tuft. If the lesion is large a segment of the glomerulus or even the entire Malpighian body, may be involved by the process. At first the outlines of the swollen epithelial cells in the diseased segment can be made out. Subsequently they are lost and the entire structure is fused into a homogeneous finely granular material. In this mass some of the nuclei are fading or undergoing karyorrhexis, although a few may still remain fairly well preserved. If the deep staining finely granular mass is situated at the periphery of the glomerulus, the epithelium of the visceral layer of Bowman's capsule over the involved part is usually found to be swollen, proliferating and desquamating into the capsular space.

When the mass with its overlying epithelium comes into contact with the parietal layer of Bowman's capsule, the latter then probably also takes a share in the desquamation, and perhaps in the proliferation Eventually this epithelium undergoes necrosis, as did the previously swollen epithelium of the involved loops of the glomerulus It also becomes part of the homogeneous, finely granular mass which now fuses with the parietal layer of Bowman's capsule At this stage, the mass may become flattened out over the area of fusion with Bowman's capsule in a crescentic fashion The homogeneous cellular material is seen to be traversed by a very delicate network Eventually the entire mass becomes thoroughly organized

The healed stage of the lesion presents the following picture A hyaline mass having roughly the shape of a truncated pyramid, its base fused with the adjacent interstitial tissue its mesial aspect adherent to the remainder of the glomerulus its sides clothed by a reflection from the adjacent epithelium of Bowman's capsule The typical lesions were found in twenty three of the twenty five cases due to the endocarditis coccus In two cases one of which was due to the influenza bacillus and one to the gonococcus the lesions were not found The percentage of glomeruli involved varied from 2 to 75 per cent in various cases

4 **Brain Lesions Produced by Electricity**—Investigations by Spitzka and Radasch on the brains of five criminals executed by electricity revealed at all levels peculiar areas varying in size and number These areas are circular in outline, ranging in diameter from 25 to 300 microns The most marked areas measure from 150 to 200 microns They are seen to consist of two portions, a central rarified part and a peripheral condensed zone The most characteristic areas contain a blood vessel (capillary or precapillary) surrounded by a delicate small meshed reticulum representing the central four fifths of the area The fibrils of the reticulum are in the main radially directed, and nuclei are sometimes observed along this course The peripheral zone surrounding the central portion in a ring like manner appears to be condensed, staining more deeply than the surrounding unaffected tissue, and is sometimes seen to be composed of circularly arranged strata which are usually free from nuclei The head like arrangement of the lesions along the blood vessels the condensation zone limiting each lesion and the radially disposed fibers and torn tissue would seem to indicate a sudden liberation of the bubbles of gas due to the electrolytic properties of the current as it seeks the paths of the least resistance along the vessels The maximum number of lesions are found in the most constricted parts of the brain stem in the path of the current and are most numerous along the longitudinal fiber tracts and blood vessels

6 **Use of Vaccines in Typhoid**—Thirty eight patients with typhoid have been treated with vaccines by Callison In these thirty eight cases there have been five deaths and one relapse with an unusual absence of complications The causes of death were a femoral phlebitis and its sequela, a double lobar pneumonia a meningococcus septicemia a ruptured spleen and asthenia The dosage Callison has been using in this series of cases was an initial injection of 500 000 000, repeated at four day intervals as long as required, and increasing the dose 100 000 000 at each subsequent injection He has continued using a stock vaccine as it causes less local reaction and is less toxic than an autogenous vaccine It is as efficient a producer of bactericidal substances (opsonins and bacteriolysins) as the more recently isolated strains and has fewer undersirable side actions

8 **Fixation in Gonococcic Arthritis**—In Schwartz's opinion a positive complement fixation test is an absolute indication of gonococcic infection somewhere in the body A positive reaction should not be expected earlier than about the beginning of the fourth week from the onset of the infection A positive reaction is obtained in a certain number of cases of gonorrhea where bacteriologic examination fails This is especially the case in women A negative reaction does not exclude gonococcic infection but is to be given some weight on account of the reasons detailed earlier It is to be remembered that gonorrhea is a common affection in both sexes This fact should not be lost sight of in interpreting a positive result in connection with any given case of arthritis A person may suffer from two infections for example acute rheumatic fever and gonorrhea as shown in Schwartz's records Interpreted however in the light of the clinical history and clinical findings it seems to Schwartz that the complement fixation test should prove an addition to our means of diagnosis between gonococcus arthritis and other form of arthritis of obscure etiology

11 **Tuberculin Therapy in Surgical Tuberculosis.**—From the *nature of the process of active immunization* Hastings says one should expect the results with tuberculin in surgical tuberculosis to be much the same with all anatomic types and such is the fact The one modifying factor aside from that of the individual's response is that of secondary infection and one may state that closed cases in the sense of Petruschky do well and often cases vary according to the summation of toxic effects from the tubercle bacillus and the secondary invaders In surgical conditions the secondary invader is not so to be feared as in the pulmonary and pleural conditions and the secondary invasions in surgical conditions always call for some other than tuberculin treatment Hastings believes that in Koch's tuberculin we have a valuable agent for treating incipient tuberculosis and until specific therapy has been tried one should never despair of a seemingly hopeless case

American Journal of Public Health, New York

August II No 8 pp 591 602

12 Municipal Disinfection in New York City as Recently Reorganized M C Schroeder New York
13 Device for Keeping Garbage Cans in Place M I Connor Ancon C Z
14 Tuberculosis and Quarantine A C Dominguez Havana Cuba

Cleveland Medical Journal

August XI No 8 pp [illegible] 610

15 Undescended Testicle A C Rowland Cleveland
16 Visit to Some Hospitals of Italy S W Kelley Cleveland
17 Work of Division of Tuberculosis of Cleveland Health Department R H Bishop Cleveland
18 *Oral Sepsis With Special Reference to Antiseptic Properties of Tobacco W D Fullerton Cleveland

18 **Oral Sepsis**—Fullerton says that the smoking or chewing of tobacco the former more so than the latter is decidedly germicidal in laboratory experiments though the results of examinations of a small number of mouths would seem to give the use of tobacco somewhat less though noticeable, effects practically by exercise of the teeth it helps their nutrition and eliminates pathologic organisms both by destroying them *in situ* and by removing them in the expectoration Of seventy four males examined twenty three or 31 per cent did not use tobacco in any form twenty six or 35 per cent smoked only nine or 12 per cent chewed only sixteen or 22 per cent both smoked and chewed Of this number only twenty three or 31 per cent took any care of their teeth Of those who brushed their teeth 43 per cent showed a gingivitis marginalis as compared with 82 per cent who took no care of their teeth Of those who did not use tobacco 74 per cent showed pus under their gums as did 69 per cent who smoked 77 per cent who chewed and 68 per cent who smoked and chewed Fullerton says that these results though bearing out in the most part that tobacco is toxic to bacteria are not nearly so striking as one might expect and one might with considerable certainty argue that with the same individuals and the same lack of care the conditions might be much worse without the use of tobacco Of twenty two women none of whom used tobacco twenty or 90 per cent brushed their teeth 50 per cent showing a gingivitis

Mississippi Medical Monthly, Vicksburg

September XVII No 4 pp 89 110

19 Salvarsan Its Administration D C La Verne Senatobia
20 Some Puzzling Thoracic Symptoms in Acute Malaria S W Glass Dublin
21 Cerebrospinal Meningitis H S Gapps Gulfport
22 Pellagra D J [illegible] Philadelphia

New Mexico Medical Journal, Las Cruces

August VIII No 4 pp [illegible]

23 Roswell Metropolis of Eastern New Mexico H A Ingalls Roswell
24 Some Blood Pressure Observations C [illegible] Roswell
25 Cesarean Section for Albuminuria F T B [illegible] East Las Vegas

Maryland Medical Journal, Baltimore

September LV, No 9, pp 209-234

26 *Massacre of Tonsil J N Mackenzie Baltimore
27 Typhoid and Way to Prevent It C W G Rohrer Baltimore

26 **Massacre of Tonsil.**—We are, says Mackenzie, going through today in laryngology what the gynecologist went through years ago. The ovaries were removed then under as little provocation as the tonsils are being taken out today. The so-called "tonsil question" is one of simplicity and comparatively small dimensions when viewed in the light of sanity and common sense but it has been made to assume formidable proportions by unsound observation and reckless surgery. It has come to a point when it is not only a burning question to the profession but also to the public. This senseless ruthless destruction of the tonsil is often so far reaching and enduring in its evil results that it is becoming each day a greater menace to the public good. Until we have more definite knowledge concerning the use of the tonsils no one can tell the damage done to the children of the present generation or the influence of wholesale tonsil removal on the children of the next.

Whatever a more exact examination of the tonsil may reveal as to its function Mackenzie believes it was placed in the throat not with evil but with good intent to serve a teleologic rather than a pathologic purpose that its mission is physiologic and that it was not designed by Nature as a natural easy and convenient avenue of infection. It is, of course not open to debate that there are a multitude of conditions that call for partial destruction or more or less complete removal of the tonsils but radical operation should not be done without definite and sufficient reason. The tonsil should not be sacrificed any more than any other organ without convincing evidence that it is the cause of the disease to be removed. Hasty theory which sees in destruction of the tonsil the only means of treatment and which unmindful of the lymphatic and other anatomic arrangement of the neighboring structures and their physiology and which losing sight of the further fact that it is hard if not impossible to determine during life that the tonsil is the only avenue of entrance in a given infection throws differential diagnosis to the winds should have no part in modern scientific laryngology.

Journal of Nervous and Mental Disease, Lancaster, Pa

September XXXIX, No 9, pp [illegible]

28 Case of Alexia and Hemianopsia With Localization of Such Lesions L Casamajor and M J Karpas New York
29 Syphilis a Possible Cause of Systemic Degeneration of Motor Tract W G Spiller Philadelphia
30 Progressive Muscular Atrophy With Necropsy Probably Syphilitic in Origin S Leopold Philadelphia

American Journal of Urology, New York

August VIII, No 8, pp [illegible]

31 Phenolsulphonephthalein Test in Surgery of Genito-Urinary Tract F L Schmidt and H L Kretschmer Chicago
32 Intravenous Administration of Sublimate Hydrargyrum Oxycyanid and Sublamin in Salvarsan Relapse M L Heidingsfeld Cincinnati

Archives of Pediatrics, New York

August XXIX, No 8, pp [illegible]

33 *Typhoid in Infancy Analysis of Seventy-Five Cases J P C Griffith Philadelphia
34 *Vaccines in Treatment of Pertussis M Ladd Boston
35 Case of Mastoiditis Followed by General Sepsis With Symptoms of Tetanus M Nicoll and F S Fielder New York
36 Tuberculosis in Young Children A Hymanson New York
37 Mental Deficiency M S Reuben New York
38 Certified Milk H L Coit Newark N J

33 Abstracted in THE JOURNAL, July 6, p 61

34 **Vaccines in Treatment of Pertussis.**—The use of pertussis vaccine in [illegible] cases leads Ladd to the belief that the treatment is worthy of further trial using larger doses and at more frequent intervals than in his series. The cases were usually typical cases of pertussis as the disease occurs in infants and young children. In every instance a characteristic paroxysm was heard in the clinic. The blood counts showing the [illegible] make the clinical [illegible]. A minimum interval of five [illegible] the mothers in bringing their children to report, the interval was increased to ten days or two weeks, or even longer. It was soon evident that no harmful effects were produced. There were no general constitutional symptoms nor local reaction at the site of the injections.

In the early cases it was soon found to be safe to give 20,000,000 (1 c c) at each treatment, even to an infant. Later as much as 40,000,000 (2 c c) were injected at one time with no ill effects. One infant of seven weeks received on May 18, 3,000,000, on June 9, 12,000,000, on June 14 10,000,000. This was the youngest child treated. It recovered quickly in three and one half weeks. The blood was not examined in this instance. Injections of 40,000,000 were given four times to babies nine months of age. In another series of cases Ladd would be inclined to start with this dose and repeat at intervals of five days and perhaps oftener. Considerably larger doses could probably be given in the course of this disease, possibly with more marked effects. No other treatment was given than the vaccine. In general, it appeared that after three injections the severity and number of paroxysms diminished. All of the children recovered without complications on an average in five weeks after beginning treatment. On an average the cases were in the third week of the disease when the vaccines were started.

Kentucky Medical Journal, Bowling Green

September X, No 17, pp 667-718

39 Kidney Infection S H Ridgway Shepherdsville
40 Stomach Troubles and Their Management by General Practitioner G G Thornton Lebanon
41 Epitome of Medical Achievements. W J Shacklette Nolin
42 Lobar Pneumonia J W Acton Glasgow
43 Address of Welcome to Annual School of County and City Health Officers M Weissinger Louisville
44 Competent All Time Well Paid Local Health Officers as Investment J N McCormack, Bowling Green
45 Problems and Difficulties of Health Officer M W Steele Corbin C W Kavanaugh Lawrenceburg B W Smock Louisville H D Rodman Bardstown A V Menefee Williamstown J B Kinnaird Lancaster J G Foley Pineville J W Kincaid, Catlettsburg W Byrne Russellville T A Frazer Marion J F Young Monticello U L Taylor Columbia A W Walden Owingsville J A Yates Edmonton J L Atkinson Campbellsville E B McMorries Clinton

New Orleans Medical and Surgical Journal

September LXV, No 3, pp 185-264

46 Summary of Literature on Etiology of Beriberi J M Swan Rochester N Y
47 *Investigation of Louisiana Rice with Reference to Etiology of Beriberi C Wellman C C Bass A C Eustis New Orleans
48 *Public Health Aspect of Beriberi R H Creel U S P H S
49 *Sodium Citrate in Treatment of Pneumonia W H Weaver Ocean Springs Miss
50 Congenital Syphilis F T Brown New Orleans
51 Eradication of Malaria J H White New Orleans

47 and 48 Abstracted in THE JOURNAL, July 27, p 298

49 **Sodium Citrate in Pneumonia.**—Since most cases of pneumonia are seen during the first three days of the illness Weaver says if treatment is immediately instituted by full doses of sodium citrate an immediate and rapid lysis should be obtained. If the pulse and temperature remain stationary for from twelve to twenty four hours the dose of sodium citrate may be increased until we have a falling pulse and temperature when the dose may be considered correct for that patient. This dosage should be continued night and day until the lung has entirely cleared up. In some cases lysis may be delayed and slower than in others but so long as we get any improvement in conditions or stay in the progress of the disease for the first twenty four to forty eight hours, we may confidently expect that the third day will inaugurate a more or less rapid lysis the character of the lysis depending probably on the permeability of the hepatized lung tissue as well as the natural plus the temporarily increased defensive elements in the blood. Fortunately bronchopneumonia is as amenable to the treatment as is lobar pneumonia. Other means such as strapping for pleurisy and bathing for high temperature are not to be neglected if symptoms call for them.

Journal of Oklahoma State Medical Association, Muskogee

September V, No [illegible], pp [illegible]

52 One Hundred Consecutive Laparotomies With One Death F M [illegible] El Reno
53 Venereal Infections With Reference to Criminal Mental and Nervous Disturbances C [illegible] Day Oklahoma City

54 Postponement of Physiologic Arteriosclerosis A. D Young Oklahoma City
55 Etiology and Treatment of Nasal Catarrh W B Newton Muskogee.
56 Ischemic Paralysis. R. L. Hull Oklahoma City
57 Serous Effusions Pericarditis With Effusions. M. H Foster Oktaha
58 Outbreak of Mania Associated With Malaria and Uncinariasis Infection C D Blachly Norman

Bulletin of Johns Hopkins Hospital, Baltimore

September XXIII No 259 pp 255 288

59 *Hexamethylenamin in Treatment of Systemic Infections With Special Emphasis on Its Use as a Prophylactic S J Crowe Baltimore
60 *Effect of Jaundice Produced by Ligation of Ductus Choledochus on Pancreatic Secretion T R Brown Baltimore
61 Present Status of Anti Typhoid Campaign in Germany W W Ford Baltimore
62 Seasonal Variations in Bacterial Flora of Baltimore City Water W W Ford and E M Watson Baltimore
63 Midwives of Anne Arundel County Maryland H Jeidell and W M Fricke
64 Undescended Cecum in Sub Hepatic Position J M Flint New Haven Conn

59 **Hexamethylenamin in Systemic Infections.**—Crowe calls attention to the fact that this drug is of value, not only as a therapeutic but especially as a prophylactic, measure in a great variety of maladies Among the conditions which may be favorably influenced by the administration of hexamethylenamin, the following are the most important (1) Infections of the genito urinary tract and typhoid bacilluria (2) Infections of the bile ducts and gall bladder (3) Infections of the cerebrospinal system poliomyelitis, epidemic meningitis, meningeal infections following injuries or infectious processes elsewhere in the body (4) Infections of the respiratory tract, including infections of the paranasal sinuses and ears, acute rhinitis, acute tonsillitis and some forms of bronchitis (In lobar pneumonia and pulmonary tuberculosis it is doubtful whether this drug is of any value)

Hexamethylenamin, given either by mouth or by rectum makes its appearance in the bile and in the urine almost simultaneously Provided large doses of hexamethylenamin are given, at least 75 grains a day, this drug appears in the gall bladder in a concentration which suffices to render the bile an unsuitable media for the growth of bacteria

Since 1908 it has been a routine measure in the Johns Hopkins Hospital to administer hexamethylenamin in all cases in which a meningeal infection is a possible or threatened complication There have been twenty cases of compound fracture of the vault, similar in that there was a laceration of the meninges and underlying cortex in each instance In eight of the earlier cases hexamethylenamin was not given and the mortality from infection was 50 per cent To each of the remaining twelve cases, hexamethylenamin was given immediately after the injury, and at frequent intervals until all danger of infection was past, ten of these patients recovered while two succumbed with a pneumococcal meningitis

There have been forty cases of hypophysis tumor in which the neighborhood symptoms were sufficiently marked to warrant an operative interference In each case hexamethylenamin has been administered as a prophylactic measure from 40 to 60 grains are given during the twenty four hours preceding the operation and even larger amounts for several days after the operation In thirty one cases there were no postoperative complications whatever in nine cases there was an escape of cerebrospinal fluid through the nose for several days following the operation, together with an elevation of temperature headache slight stiffness of the neck and other symptoms suggesting a meningeal infection Three of these patients finally succumbed with meningitis the other six patients however, recovered

This drug is often of the greatest value in aborting an acute coryza provided it be given in large doses and during the earliest stages of the infection There have been but very few instances in which toxic symptoms have resulted from the administration of large doses of hexamethylenamin although from 200 to 300 grains daily for four or five days were given even in children doses of 100 or 125 grains a day have produced no irritative symptoms provided it was possible to administer the drug sufficiently diluted with water

They have abandoned the custom of giving this drug in doses of 10 to 15 grains at stated intervals since it is often difficult to induce the patient to take at one time, the 250 or 300 c c of water in which doses of this amount should always be dissolved In case the patient is very ill the drug is usually administered per rectum from 50 to 100 grains being dissolved in a liter of salt solution and allowed to slowly flow into the bowel a drop at a time In no case has there been the slightest evidence of undue irritation of the intestinal mucosa when the drug is thus given and as a rule the salt solutions are well absorbed even after one or two weeks of almost continuous administration by this method If the patient is able to take nourishment by mouth from 2 to 3 grains of hexamethylenamin are added to every ounce of liquid, since the drug is practically tasteless and it is often possible in this way, to give from 60 to 100 grains a day without the patient's knowledge and without producing gastric or renal irritation

In ninety five cases in which the average dose of hexamethylenamin was 75 grains a day for ten days painful micturition and hematuria occurred in seven instances Two of these cases were fatal meningeal infections of otitic origin the patients were desperately ill when brought to the hospital and the drug was given in unusually large amounts with the hope of checking the progress of the infection A third was a case of tuberculous meningitis in a child seven years of age In each of these cases there was a well marked hematuria but at the post mortem examination it was apparent that it had its origin from the mucous membrane of the bladder and was not due to an acute renal irritation In the remaining four cases the urine rapidly became normal on the withdrawal of the drug

Although there are undoubtedly certain individuals who have a personal idiosyncrasy for hexamethylenamin and even a small dose may cause uncomfortable symptoms such as a skin rash, catarrh of the mucous membranes gastric or urinary irritation, Crowe says, this fact does not invalidate the use of the drug Aside from personal idiosyncrasies the experience has been that untoward symptoms usually arise as a result of insufficient dilution and such symptoms have invariably disappeared on withdrawing the drug and producing active diuresis by forcing liquids

60 **Effect of Jaundice on Pancreatic Secretion.**—A series of experiments made by Brown showed that after the ligation of the gall duct and the consequent production of a rapidly developing jaundice there is a marked reversal in the pancreatic juice both as regards amount and ferment richness after the different types of foods there is more juice with milk than with meat and where before the trypsin or the diastase showed a definite increase now a decrease would be likely to be met with and vice versa The removal of the bile from the intestine after the previous withdrawal of the major portion of the pancreatic secretion produces in a very short time a rapid loss of weight and strength ending in sudden death and emphasizes anew the great importance of the bile as a partial substitute for the pancreatic secretion if the latter is absent or markedly diminished

Journal Lancet, Minneapolis

September 1 XXXII No 17 pp [illegible] 478

65 Some Things Practical in Serodiagnosis C L [illegible] St Paul Minn
66 Functional Results in Prostatectomy F S Judd Rochester Minn
67 Rectosigmoidoscopy A C Strachauer Minneapolis
68 Case of Traumatic Incontinence of Urine and Congenital Absence of Vagina With Operation and Suggestions for Improved Technic J L Engstad Minneapolis

New York Medical Journal

September 7 XCVI No 11 pp [illegible]

69 Yellow Fever a Strictly Human Disease A [illegible] Havana Cuba
70 *Pneumonia in Children H [illegible] Philadelphia
71 Wassermann Test M K [illegible] New York
72 Vesical Neopla[illegible] New York
73 [illegible] New York
74 Endourethr[illegible] New York
75 *Complete[illegible]
76 Massive [illegible]
77 Cinemat[illegible] Mata[illegible]

70 **Pneumonia in Children.**—Lowenburg has employed the hydrochlorid of quinin, hypodermically, in doses of 1 grain, with some probable benefit. The same is true of the natural preparation of sodium salicylate, grain ½ to grains 2, sodium benzoate grains 2 to 3, hexamethylenamin, grains 2 to 3 and euquinin (quinin ethyl carbonate), grain ½ to 2 All these measures are designed to control temperature and combat infection With antipneumococcic serum and bacterins he has had no experience In strong children suffering from the second stage of a diffused acute bronchitis, with mucus and many râles who are "rattling" in the chest, or in cases of bronchopneumonia where the same condition prevails where the children are said to be "choked up," Lowenburg has adopted the following plan of treatment with much success, based on the principle that what these patients need is drainage and something to control the inflammatory process as much as possible thereby preventing the large reaccumulation of mucus With this in view he seeks to empty the bronchial tubes in two ways by the mouth and by the bowels and to control further production of mucus through drugs which act on the secretory apparatus and to apply antiseptics directly to the mucous membrane These patients first receive from ½ to 2 teaspoonfuls of castor oil within one to one and one half hour they get 30 drops of ipecac and 15 minims of the wine of antimony every hour until emesis occurs but not more than three doses are given They then receive tincture of belladonna and the aromatic spirit of ammonia The first is given in 5 minim doses every four hours gradually increased to 15 or 20 drops and the latter is given in 5 to 10 minim doses Every other hour inhalations of the following are given Oil of eucalyptus 4 drams beechwood creosote 4 drams oil of turpentine enough to make four ounces From 1 to 2 tablespoonfuls are added to a quart of water which is kept boiling in the room for at least a half to one hour During the interim the room is ventilated The diet is kept low and fever and other symptoms are combated on general principles Stimulation in these cases is rarely needed but if it is reliance is placed on strychnin quinin and alcohol

75 **Treatment of Tonsillitis.**—Medical treatment is commenced by Griffith by giving calomel grain ⅛ or grain ¼ (gram 0 008 or 0 016) tablets one every thirty minutes until 2 grains (gram 0 130) are taken or until the patient's bowels are well moved so keep regulated thereafter When first seen a hot mustard foot bath is given (heaping tablespoonful of powdered mustard stirred up in a pail of hot water) having the patient wrapped in a blanket in which he is afterward put to bed The diet should be light and meat is better wholly refrained from In cases accompanied by prostration home made meat juice may be employed The course of treatment is planned to extend over a period of one two or three days to suit requirements of acute attacks of tonsillitis The specific treatment consists of quinin bisulphate (used because most soluble) grains 2 (gram 0 130) with Dover powder grains 5 to 10 (gram 0 333 to 0 666) when the patient is first seen then administered night and morning thereafter during the course Separate and distinct is the following treatment which is directed to be regulated according to the amount of purulent exudate dripping from the infected tonsils for it is these throat droppings absorbed down in the stomach and intestines which cause the exacerbations of systemic reaction in tonsillitis To combat this Griffith gives drops 1 or 2 (c c 0 05 or 0 1) of pure phenol stirred into a quarter of a glassful of cold water to be administered from two to eight times a day of twenty four hours as required

Local cleansing of the throat may be employed by the patient with a mild gargle and oily spray which latter does good by aiding suspension of the falling exudate Hydrogen peroxid Griffith finds too harsh for use The throat and tonsils may be gently wiped over once every one to three days by a solution of tannic acid one part in glycerin four parts or one of tincture of chlorid of iron one part in glycerin five parts Throat lozenges containing guaiacum grain 1 or 2 (gram 0 065 to 0 130) or made up with camphor grain 1/10 (gram 0 006), menthol grain 1/10 and cocain hydrochlorid, grain 1/32 (gram 0 002), may be administered at the rate of six or eight a day Lumps of cracked ice may be sucked to relieve thirst and lessen local inflammation An ointment or hot poultice application to the neck under the angles of the jaw when lymphatic glandular involvement is manifested by swelling and pain, may be used Marked mechanical obstruction to breathing is to be met by a linear slash with a guarded bistoury through the bulging tonsil, one organ offending more than the other by its prominence is the rule One or more cuts are to be made as necessary reliance in this method depending on shrinkage obtained by blood depletion and sacrifice of the least amount of tonsillar tissue Griffith does not object to a proper shortening of an elongated uvula provided it is causing a symptomatic cough

Tonic treatment as of the hypophosphites, is employed subsequently if necessary Excessive diarrhea or the pressure of smoky urine calls for reduction or cessation of the phenol medication

Medical Record, New York

September 7 LXXXII No 10 pp 415 460

78 False Gigantism Complicated by Traumatic Ostosis W W Griffin New York
79 Research Work in Life Insurance Medicine. F L Hoffman Newark, N J
80 Case of Accessory Pancreas in Gastro Intestinal Tract C L Gibson New York
81 Treatment of Hyperacidity the French Viewpoint M E Rehfuss Paris France
82 Enlargement of Mediastinal Glands C F Boehme New York
83 Plea for More Careful Examination in Dermatology B L Ochs New York

Boston Medical and Surgical Journal

September 5 CLXVII No 10 pp 331 366

84 *Use of Lactic Acid Soured Milk and Lactic Acid Bacilli in Pulmonary Tuberculosis I C Bartlett and C A Murphy Rutland Mass.
85 Two Cases of Diverticulum of Bladder Treated by Operation. A L Chute Boston
86 Present Status of Salvarsan A Post Boston
87 Two Cases of Orchitis Due to Mumps Treated by Operation G C Smith Boston

84 **Lactic Acid Soured Milk and Lactic Acid Bacilli in Pulmonary Tuberculosis**—The authors present certain types of cases in which lactic acid soured milk has proved of undoubted value They give the method of application and the means adopted for preparing it on a relatively large scale in hospital practice together with a brief consideration of the particular ferment employed and their experience with other lactic acid culture

Northwest Medicine, Seattle

August IV No 8 pp 227 260

88 Increase of Malpractice Suits. F A Sommer Portland Ore
89 Pathology and Treatment of Membranous Pericolitis R A Dolbey Vancouver B C
90 Surgery of Colon A E Rockey Portland Ore
91 Impressions Gathered on Recent Trip to Some of Surgical Clinics of Europe and America R C Coffey Portland Ore

Lancet Clinic, Cincinnati

August 31 CVIII No 9 pp 221 248

92 Case of Pellagra A Ravogli Cincinnati
93 Treatment of Structural Scoliosis A H Freiberg Cincinnati
94 Diphtheria Bacillus Carriers and Staphylococcus Pyogenes Aureus A J Bell Cincinnati

Laryngoscope, St Louis

August XXII No 8 pp 997 1075

95 Contribution to Pathology and Clinical Diagnosis of Status Lymphaticus C H Cocks New York
96 Operation for Reduction of Redundant Alar Cartilages J Leshure New York
97 Vincent's Fusiform Bacillus Experimental Researches F Lasagna Parma Italy
98 Case of Scleroma S Iglauer Cincinnati
99 Case of Lingual Thyroid G Fetterolf Philadelphia
100 Acute Inflammation of Thyroid. O J Stein Chicago
101 Black Hairy Tongue (Lingua Villosa Nigra) Report of Two Cases W W Carter New York
102 Neglect of Trachea J A Thompson Cincinnati
103 Adductor Paralysis of Left Vocal Cord Due to Mediastinal Tumor with Skiagraph C D Van Wagenen New York
104 Diseases of Labyrinth with Special Reference to Fistula Symptom F I Spencer Boulder Colo
105 Hypophysis Cerebri E W Voorhees New York
106 Use of Alcohol in Accessory Sinus Disease S H Lutz Brooklyn
107 Adjustable Open Speculum H I Mosher Boston
108 Automatic Tonsil Suturer Demonstrated at Docent's Verein Austria I J R Stuart Milwaukee
109 New Loop for Nasal Wire Snare J Szymanski Chicago

FOREIGN

Titles marked with an asterisk (*) are abstracted below Clinical lectures single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest

British Medical Journal, London

August 24, II, No 2699 pp 405 464

1 *Further Experience of Specific Curative Action in Amebic Disease of Hypodermic Injections of Soluble Salts of Emetin L Rogers
2 Granule-Shedding in Trypanosoma Gambiense H. S Ranken
3 Results of Sanatorium Treatment F W Burton Fanning and W J Fanning
4 Use of Antiformin in Sputum Examination G H K. Macalister
5 *Pikrin Method of Staining Tubercle Bacilli H Wilson.
6 Education of Specialist on Continent H Mygind I Watson Williams and H S Birkett
7 Acute Suppurative Otitis Media Its Neglect and Proper Treatment. R H Woods C Rundle and G Alexander
8 Value of Decompressive Operations in Intracranial Complications of Otitic Origin Special Reference to Treatment of Otitic Meningitis W Milligan
9 Prevention of Deafness in Non-Suppurative Cases J K. Love
10 Indications for Schwartze Operation G J Jenkins
11 Factors Affecting Marching Powers of Troops. N D Walker
12 More General Use of Iodin in First Aid Treatment of Accidental Wounds A. G Wildey
13 Eyestrain in Royal Navy With Reference to Gunnery and Other Ratings W A Whitelegge
14 Treatment of Syphilis by Salvarsan N Raw

1 **Emetin in Amebic Disease**—*Taken as a whole Rogers* believes that the twelve cases of amebic abscesses of the liver and spleen treated by him by emetin injections are full of promise Either the hydrochlorid or the hydrobromid of emetin are equally useful, the former being the more soluble, while the latter requires about 2 c c of sterile water or saline to dissolve it. At first Rogers chiefly used ⅓ grain doses, but now very seldom employs less than ½ grain at a time, and often gives as much as ⅔, the equivalent of 60 grains of ipecacuanha, and has twice injected 1 grain doses subcutaneously without any vomiting or depression but such a quantity is only required in extremely acute amebic dysentery The salts can be safely boiled for a very short time, but it is better to dissolve them in sterile saline, or to boil the solution first and then add the emetin salt

The extraordinary rapidity with which very marked improvement follows the subcutaneous injections of ½ grain doses of emetin is of the greatest diagnostic importance, for cases of bacillary dysentery and other nonamebic causes of the presence of blood and mucus in the stools are not materially affected by the drug although it has done no harm in them Thus, in a case of chronic bacillary dysentery complicating kala azar, emetin injections had no effect, and the disease steadily progressed to a fatal termination In Rogers' experience whenever active amebas of the *histolytica* type including the variety described by Noc and shown by Crieg to be the common one in India have been found in dysenteric stools the disease has eventually proved amenable to full doses of ipecacuanha if not too acute or far advanced Still facilities and time for the microscopic examination of the stools of the large number of dysentery cases which often have to be dealt with in the tropics, are seldom available so a simple and harmless clinical method of differentiating amebic from other forms such as is now put forward by the author is clearly of the greatest practical importance and will lead to the early adoption of suitable treatment in those cases which prove not to be amebic in nature (See also abstract in The Journal July 20 p 227)

5 **Pikrin Method of Staining Tubercle Bacilli**—It is claimed for the pikrin method of staining tubercle bacilli that bacilli deprived of their waxy coating can be detected by this means and also that degenerate "splitter" or spore forms may be recognized when unstained by the Ziehl Nielsen method As these spore formations under suitable conditions may develop into active virulent tubercle bacilli it is of the utmost importance to recognize them in sputum from the point of view of infectiveness of a patient This the pikrin method enables one to do

Spengler's method is simple and is conducted as follows Having made a suitable film 1 Stain with carbol fuchsin warm but without too much heat 2 Pour off the stain without washing 3 Pour on picric acid alcohol (consisting of equal parts of saturated solution of picric acid and absolute alcohol) After three seconds 4 Wash with 60 per cent alcohol 5 Treat with 15 per cent. nitric acid till yellow (thirty seconds) 6 Wash again with 60 per cent alcohol 7 Counterstain with picric acid alcohol till lemon colored 8 Wash with distilled water and dry gently at a low heat

The bacilli appear bright red on a lemon colored ground and if present are more perceptible than by any other method In Wilson's opinion it is the best stain for urinary residues in which the tubercle bacillus is suspected

Lancet, London

August 24 II No 4643 pp 497 568

15 History of Syphilis Wassermann Reaction and Parasyphilis and Treatment H Morris
16 *Vaccination for Typhoid by Living Sensibilized Typhoid Bacilli W Broughton Alcock
17 *Method of Vaccine Therapy of Surgical Tuberculosis. J Fraser and J P McGowan
18 Nerve-Ending Anesthesia C Clarke
19 *Nature of Colon Bacilluria. F M N Williams
20 Septicemia Following Septic Laryngitis A Abrahams
21 Roentgen Ray Treatment of Hypertrichosis A F Savill.

16 **Vaccination for Typhoid**—The following conclusions are drawn by Broughton Alcock 1 The successful experiments on man by the method of Besredka have taken us one step *forward in the application of vaccination* Cannot the sensibilized living *B typhosus* be considered in the same light as the virus of small pox attenuated or modified by the immunized calf lymph and which gives rise to a specific immunity that may be veritably called ideal? 2 The sensibilized living bacilli remain alive over four months without exceptional precautions and their preparation is simple rapid and practical 3 The first dose for a woman of average size should be 500 000 000 sensibilized living bacilli in 1 c c of 0 8 per cent saline For a man of good physique the first dose should be 750 000 000 in 1 c c of 0 8 per cent saline The second dose, seven to nine days later, should be double these quantities The dose of 500 000 000 represents 1 c c of a culture of twenty four hours on gelose without peptone in 100 c c of saline Diluted 1 to 40 and at the dose of 0 1 c c it fixes 0 1 c c of titrated guinea pig's complement 4 There is no general reaction and only an insignificant local reaction following these injections The patient is in no way obliged to change his daily routine of living These results are in marked contrast with Broughton Alcock's experience of the reactions following the injections of the same number of killed bacilli in the vaccine of Wright Leishman 5 An elevated temperature a previous history of typhoid and the time of menstruation are not contra indications to the giving of the living sensibilized bacilli typhosi 6 The sera of persons injected with sensibilized bacilli typhosi have not been found to deviate complement and only rarely to agglutinate an emulsion of a young culture Their addition however markedly increases phagocytosis Probably they also contain anti endotoxin bodies 7 The detected presence of specific amboceptors agglutinins bacteriolysins cannot be said to show the degree of immunity attained The results of experiments *in vitro* cannot be interpreted as denoting the state of the patient's resistance 8 As it has been asserted by all authors that vaccination by living microorganisms is the most effective and moreover this has been proved by the experiments on chimpanzees made by Metchnikoff and Besredka and as Broughton Alcock's observations on man have proved the innocuousness of the living sensibilized *B typhosus* he presumes to conclude that this method ought by preference to be applied to man Since the writing of this article 750 persons including many soldiers have been inoculated The results are most satisfactory and encouraging

17 **Vaccinal Treatment of Surgical Tuberculosis** Acting on the supposition that while artificially prepared tuberculins may contain many of the toxic substances responsible for the pathologic changes present in a tuberculous focus the whole of these toxic substances would be most likely obtained in tuberculous foci as they occur in the naturally infected human body the authors have [illegible] such [illegible] for the prepara tion of a vaccine [illegible] of [illegible] media for the [illegible] ration of vaccinal [illegible]

human tissues have acted as the culture medium have been employed. Further, they have made, as far as possible, the vaccinal treatment autogenous, using the patient's own tuberculous material, obtained at an operation or otherwise, as the source of the vaccine. In some cases this was impossible as no operation had been performed, and in such instances material from other patients was used, but bone cases were always treated with material from bone tubercle and gland cases with material from gland tubercle.

A portion of tuberculous tissue, preferably caseous, was taken at the operation and ground up in an agate mortar with washed silver sand; saline was then added and the emulsion allowed to stand for an hour to allow the grosser particles of the sand and tissue to settle. The supernatant fluid was then centrifuged to get rid of the finer particles. This supernatant fluid was pipetted off and sterilized by heating to 60 C. for an hour. The fluid so obtained was tested for sterility and finally put up in measured quantities in sterile capsules which were sealed. They began their experiments with a very small quantity of the vaccinal fluid, 5 c.mm. and if the patients did not react too severely the next dose which was given a week after was increased to 10 c.mm. and so on with increments every week of 5 c.mm. until at the end of ten weeks a dose of 50 c.mm. was given.

After the injections there were rise of temperature and malaise in most of the cases. In some such symptoms were slight or absent. The local symptoms however present in all were acute and always well marked. There was considerable congestion in some cases to the extent of extravasation of blood. Caseation appeared to be hastened in certain of the cases. In none of the cases was there any lesion abscess or otherwise produced at the site of inoculation. Such inoculation was done by painting the skin usually of the upper arm with tincture of iodin and inoculating the vaccine subcutaneously.

No attempt was made to choose special cases in the above series. The first ten which presented themselves were put on the treatment. The majority were cases also which had not improved under the usual means of treatment. The most encouraging results were seen in gland tubercle, the reason probably being that from their greater accessibility to clinical examination improvement was more readily detected. Even more striking than the local improvement was the general change and this was all the more important when one recollects that the hygienic surroundings of the patient were in no way improved while the treatment was going on. Another noticeable feature was the rapidity with which improvement made its appearance; in one case only did the treatment exceed ten weeks. An improvement began to be noticeable usually after the third inoculation.

19 **Nature of Colon Bacilluria.**—This investigation was undertaken with the hope of throwing light on the etiology of colon bacilluria and cystitis and on the relations of these two conditions. The urines of seventy cases taken at random from patients seen in the course of a general practice were examined for the presence of colon bacillus. The disorders found correlated with the bacilluria were carefully noted in each case and tabulated. Of the seventy patients examined forty-four (Series A) suffered from some chronic disorder of the intestine usually of long standing. In the remaining twenty-six cases (Series B) there was no history of any chronic irregularity of the bowels; most of them complained of frequency of micturition or pain on passing urine, which in several dated from the passing of a catheter. Sixteen cases of colon bacilluria were found among the seventy patients examined; all occurred in Series A; two only had definite symptoms of cystitis though all sixteen had some frequency of micturition. In other words bacilluria occurred in a little more than 22 per cent. of the whole number of patients examined while it occurred in more than 36 per cent. of Series A and in none of Series B.

Journal of Tropical Medicine and Hygiene, London

[illegible]

22 [illegible]

Journal of Obstetrics and Gynecology of British Empire, London

July, XXII, No. 1, pp. 1-64

24 *Pelvic Inflammation in Woman. A. F. Lock.
25 *Experimental Work on Physiologic Function of Ovary. A. L. McIlroy.
26 *Axial Rotation (Cervical Torsion) of Myomatous Uterus. J. A. Kynoch.
27 Case of General Edema of Fetus With Fetal Ascites and Hydramnios. T. Davies.

24. **Pelvic Inflammation in Woman.**—Lock's paper is based on 118 cases in St. Thomas' Hospital during the year 1911. The total number of patients operated on for inflammatory conditions of the uterus and its appendages and the neighboring peritoneum and cellular tissue was 100. Eighteen patients were discharged without operative treatment. In thirty of these cases the pus found at the operation was examined bacteriologically. While collecting these cases Lock noticed that a very definite relation obtained between the organism present and the class of case in which it occurred, and that the type of lesion caused by any one organism was remarkably constant. In a large proportion of the more chronic cases of pelvic inflammation no organism can be found by bacteriologic methods, as there is a tendency for the organism which caused the condition after a certain time to die out.

The commonest course for the infection to pursue is an ascending one, the organisms gaining access to the genital tract during sexual intercourse and parturition, and, less commonly during examination and operation. A descending infection is comparatively rare, it is the common route taken by tuberculous infection, while occasionally the tubes are infected by the passage of organisms from the appendix, or some other portion of the gut. This sometimes occurs as a reinfection of an old pyosalpinx or salpingitis in which the original causal organism had died out. The pelvic peritoneum and fallopian tubes are involved when general peritonitis occurs from whatever cause, but the local effects are lost in the general invasion of the peritoneum.

Apart from tuberculosis, the common causes of pelvic inflammation are the gonococcus, and the group of pyogenic cocci and bacilli. The gonococcus in some cases ascends soon after infection as far as the fallopian tubes and there gives rise to salpingitis, in the majority of cases double, with consequent sterility. In others, however, after an acute attack of vaginitis or cervicitis, it may apparently become latent and the patient may become pregnant. The pregnancy may proceed to full term or may terminate in abortion. Then after an interval the gonococcus seems to ascend and reach the fallopian tubes and give rise to salpingitis. This does not seem to occur till some weeks at any rate have elapsed since the confinement and it is always questionable whether the patient may not have become infected subsequently to the pregnancy.

The group of septic organisms again falls into two divisions; in one the streptococcus is found either alone or occasionally in association with other organisms, while in the second a large number of organisms seem to occur indifferently either singly or two or more together. The former condition occurs in puerperal cases with a history of the onset of symptoms within a few weeks of confinement.

25. **Physiology of Ovary.**—McIlroy concludes that ovarian grafts prevent atrophy for a time but ultimate degeneration takes place in the transplanted tissue followed by atrophy of uterus. The rate of degeneration varies with the site of implantation, the more vascular the site the longer the persistence of graft. Degeneration takes place first in the cells of the corpus luteum as evidenced by hyaline changes and leukocyte infiltration. The follicles show cystic degeneration. The interstitial cells persist much longer than the follicles and they appear to control the nutrition of the uterus as atrophy takes place when these cells are degenerated and no atrophy when they are present without any trace of follicles.

In the course of a series of experiments now in process on the effects of castration on calcium and phosphorus metabolism the ovaries were removed from a female dog during proestrum The uterine discharge ceased immediately after operation and was not again observed Examination of the ovaries showed that corpora lutea were present and follicles in all stages of development The interstitial cells were much enlarged, and in the neighborhood of the corpora lutea they were found to contain the lipoid substance so characteristic of lutein cells. It is therefore possible that the interstitial cells have an important function in the maintenance of the nutrition of the uterus, and in the production of an internal secretion, and that they undergo various changes during proestrum and estrus

26 **Torsion of Myomatous Uterus**—From a study of the reported cases it would appear to Kynoch that pain associated with a uterine fibroid is more frequently due to slight torsion than is generally supposed, and that cases of acute axial rotation of the uterus must be regarded as one of the gravest risks to which women with uterine fibroids are liable, and therefore demands prompt operative interference

Annales de Gynécologie et d'Obstétrique, Paris

July LXXIX No 7 pp 385 448

28 Spontaneous and Criminal Abortions A Herrgott.
29 Prophylactic Method of Treating Eclampsia (Traitement de l eclampsie par la methode prophylactique dans les cliniques obstétricales de Berlin) B Stroganoff
30 Serodiagnosis of Pregnancy (Séro-diagnostic de la grossesse.) A. Quintella
31 Treatment of Tuberculosis of the Female Genital Organs M. Patel Commenced in No 6

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

June I, No 6, pp 497 619

32 *Experimental Research on Transmission of Antibodies to the Offspring (Etude d ensemble sur la transmission des anticorps des ascendants à leur progeniture) M af Heurlin

July No 7 pp 1 48

33 *Torsion of Normal Ovary or Tube (De la torsion spontanée de la trompe et de l ovaire normaux.) M. Auvray

32 **Transmission of Antibodies to the Offspring**—Nearly a hundred pages of this article are devoted to the report of extensive experimental research in this line and comparison with 222 articles on the same subject in international literature The clinical and experimental record is thus brought down to date in regard to most of the infectious diseases of man and animals

33 **Spontaneous Torsion of Normal Ovary or Oviduct.**—Auvray reports a case in which a normal fallopian tube became twisted without apparent cause The patient was a girl over 14, menstruating regularly for a year, and the sudden disturbances in the right side were ascribed to appendicitis An ice bag arrested the pain and vomiting, and menstruation recurred at the regular period As the right flank was still tender, she entered the hospital the fourth day, but as appendicitis seemed beyond question palpation through the rectum was neglected The third week the appendix was removed. It proved to be normal and further search revealed torsion of the right tube This proved also to be histologically normal but it was removed The only morbid feature in the patient's previous history was a hemorrhagic vaginal discharge noticed for twenty four hours after birth Auvray summarizes from the records nineteen cases of torsion of sound adnexa outside of the abdominal cavity and six inside all in the non pregnant, and three occurring during a pregnancy In the first group the torsion occurred in connection with a hernia in all but one case, and all were in children from 1 month to 5 years old. Among all the other cases only three of the patients were free from some previous pathologic condition in the pelvic organs

Lyon Medical, Lyons

June 16 XLVI No 24, pp 1309 1368

34 Technic for Estimation of Blood Pressure (Sur quelques points de technique sphygmomanometrique) C Finck

June 23 No 25 pp 1369 1433

35 Combined Treatment of Motor Disturbances (Des associations du massage de la mecanothérapie et de la reeducation motrice dans le tabes la paraplegie spasmodique et l hemiplégie pendant la cure thermale de Lamalou) Michaud

June 30 No 26, pp 1434 1496

36 *Nerve Grafting (Les greffes nerveuses) J P Morat. Commenced in No 25

July 14 No 28 pp 61 120

37 Total Arythmia and Fibrillation of the Auricles (Arythmie complète et fibrillation auriculaire) L Gallavardin and A Dumas

July 21, No 29 pp 121 156

38 *Cyanid of Mercury in Ophthalmology (Utilité et mode d emploi du cyanure de mercure pour prévenir ou guerir les infections exogènes de l œil) Grandclément

July 28 No 30 pp 157 188

39 Pathologic Anatomy of Certain Severe Nervous Disturbances Without Apparent Lesions (Les données de l anatomie pathologique dans certaines affections nerveuses graves sans lésions apparentes) L. Beriel To be continued.

August 4, No 31 pp 189 228

40 Prehistoric Syphilis. (Syphilis osseuse préhistorique) M Gangolphe

36 **Nerve Grafting**—Morat describes an experiment on a dog which tends to show that nerve function cannot be restored by replacing the injured portion of a nerve by a segment from another He chloroformed the dog, ligated the left sciatic so firmly as to be equivalent to sectioning it, removed a section 5 cm long from the right sciatic and "spliced" it over the ligature with silk threads After four days the animal seemed to be in normal condition Ten days later the dog was anesthetized again and with all possible precautions to assure the accuracy of the experiment the proximal end of the ligated nerve was stimulated with an induced electric current No contraction took place in the muscles supplied by the nerve On histologic examination the proximal end of the nerve was found normal, the distal end degenerated and the graft degenerated somewhat but not so much as the distal end of the nerve.

38 **Use of Cyanid of Mercury in Ophthalmology**—Grandclément uses a solution of cyanid of mercury 1 to 2,000, for disinfecting in all operations on the eye He bathes the eye with it several times a day for three days before the operation, and has never had a case of suppuration since adopting this method Moreover he claims that this solution is a very effective remedy for chronic iritis and iridochoroiditis, and particularly for atrophic chorioretinitis

Revue Mens. de Gyn., d'Obstétrique et de Pédiatrie, Paris

July VII No 7 pp 401 464

41 Uterine Fibroma and Pregnancy Three Cases (Fibrome utérin et grossesse) F Trapont.
42 *Asphyxia Neonatorum (Quelques traitements nouveaux de la mort apparente du nouveau né.) P Delmas
43 Acute Dilatation of the Stomach After Childbirth J Audebert

42 **Asphyxia Neonatorum.**—Delmas discusses some of the later methods of combating the subaeration and excess of carbon dioxid in the blood of a new born child Permitting blood to escape from the umbilical cord releases some of the dioxid, and transfusion of artificial serum into the umbilical vein, in "white asphyxia," has also proved useful Delmas' own method of passive oxygenation of the lungs by intratracheal insufflation of oxygen was mentioned in The Journal, July 6, p 73 He makes a point of keeping the infant after reanimation in an incubator for a day under close supervision Aside from cases of subaeration from debility, prematurity or severe obstetric injury, lumbar puncture is liable to clear up the diagnosis and prognosis If the cerebrospinal fluid is clear, showing that there is no vascular injury of the nerve centers, the outlook is favorable If the fluid is hemorrhagic, repeated puncture may restore the child

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIII No 4 pp 455 559 Last indexed Aug 31 p 754

44 Pathology of Tuberculous Peritonitis H Voss
45 *Experimental Tuberculin Treatment H Haupt.
46 *Etiology of Tuberculosis and Phthisis (Heilstättenerfahrungen über Tuberkuloseinfektion und Schwindsuchtsentstehung mit bes Berücksichtigung der Römerschen Anschauungen) W Freymuth
47 Albumose-Free Tuberculin (Therapeutische Erfahrungen über das Kochsche albumosefreie Tuberkulin) O Orszag and I Spitzstein
48 Lung Findings After Injection of Iodipin Simulate Advanced Tuberculous Process (Schwere Lungentuberkulose röntgenologisch vorgetäuscht durch Niederschläge nach subkutanen Jodipininjektionen in Rücken) A Schmitt
49 *Albumosuria in the Tuberculous H Deist

XXIV No 1 pp 1 144

50 Artificial Pneumothorax in Treatment of Advanced Pulmonary Tuberculosis Five Cases (Beitrag zur Pneu x Behandlung schwerer L uberkulose) Boch
51 Experimental Research on on and Effusion ficial Pneumothorax
52 *Exacerbations in Tu r n tion) K Dietl and
53 * "Scrofula" in Adults er

- 54 Pulmonary Tuberculosis with Much's Granula Alone. Fourteen Cases. (Ueber Lungentuberkulose-Formen mit ausschliesslichem Vorkommen Much'scher Granula.) W. Neumann and R. C. Matson.
- Tuberculosis in a Rural Community. (Die Sterblichkeit der Bevölkerung der Bauernschaften Schlangen und Kohlstadt an Tuberkulose von 1801-1908 inkl.) Werner.
- Acute Hemorrhagic Nephritis with Pulmonary Tuberculosis. I. Tobiesen.

45 **Experimental Tuberculin Treatment.**—Haupt reviews the conflicting results of various workers in this line and then reports extensive research of his own in which he inoculated guinea-pigs and rabbits with small doses of tubercle bacilli and then applied tuberculin treatment approximating as closely as possible clinical conditions. The findings were practically negative.

46 **Origin of Tuberculosis.**—Freymuth writes from the Belzig sanatorium that in his experience scarcely any child escapes infection with tuberculosis among the classes of the population most exposed. Consequently pulmonary tuberculosis in adults usually develops in an organism already infected. The primary infection varies in importance according to the age at which it occurs. Almost absolutely fatal in young infants, it becomes milder after the first two years; between the ages of 6 and 15 most of the tuberculous infections display a pronounced benign character. The only exception to this is pulmonary tuberculosis which seems to be as serious in children as in adults. His experience further shows that pulmonary tuberculosis in adults cannot be regarded as the simple continuation of a tuberculous process in the lungs in childhood; it is a new affection either from new external infection or the further development of some old latent pulmonary process persisting since childhood, or there may be an endogenous infection of the lungs. Of decisive moment for the manifestation of the disease are unhygienic conditions, the personal predisposition and a tuberculous environment. On the other hand the factors which influence the course of the disease are the presence of immunity left from the primary infection and the severity of the second infection. Prophylaxis of tuberculosis must begin with the children and the most important measure is to protect infants during the first two years. Prophylaxis of pulmonary phthisis is best realized by radical treatment of the benign forms of tuberculosis in children of the school age. There is not much hope of influencing pulmonary tuberculosis in children, but fortunately this is rare; such children should be segregated. All the measures hitherto in vogue to protect adults against tuberculosis must be scrupulously enforced as so far there is nothing to show that once healed tuberculosis renders the individual immune to a second infection from without.

[illegible] **Albumosuria in Tuberculosis.**—Deist found albumosuria in the urine only in the third stage of tuberculosis. The albumose is probably derived from the bodies of the tubercle bacilli. Tuberculin contains such small amounts that in the usual dosage it cannot be responsible for persisting albumosuria. His research shows, however, that albumosuria after an injection of a solution of albumose is transient while after injection of large amounts of tuberculin it can be detected for three days. This fact might be utilized in diagnosis and prognosis. If the reaction for albumosuria persists longer than this, some fresh inflammatory focus in the lungs may be assumed, that is, that the tuberculosis is active. The constant febrile albumosuria after tuberculin injections is evidently due to the reaction and the degree of the albumosuria and its duration may thus serve as a guide in the dosage of the tuberculin.

52 **Exacerbations in Tuberculosis.**—The experimental research of [illegible] shows that the immunity of tuberculous guinea-pigs to reinfection serves to protect only against small reinfecting doses. Hamburger has recently shown that weeks and months after the reinfecting dose changes suddenly [illegible] at the point of inoculation which must be regarded as exacerbations of the tuberculosis. The experiments here [illegible] made with guinea-pigs; they were inoculated with small doses of tubercle bacilli and then later were [illegible] at the same time as untreated controls. The [illegible] the importance of the predisposition [illegible] experimental [illegible] predisposition, such as has not been attainable before. The findings are tabulated for comparison.

53 **"Scrofulous" Adults.**—Bauer protests against the neglect of the manifestations of "scrofula" in adults. Signs and symptoms suggesting scrofula in the past or its persistence can often be found on careful search and throw much light on the diagnosis in dubious cases of tuberculosis in adults. The connection of tuberculosis with scrofula is as manifest in adults as in children. The manifestations in the eye are less frequent and less severe in adults than in children, but the former suffer more from chronic catarrh of the upper air passages, which however does not induce such hyperplasia as in children. He has sometimes witnessed scrofula develop in the course of pulmonary tuberculosis in adults. Certain peculiarities of the "scrofula" in adults suggest that it is a manifestation of the immunity process or the loss of a previously acquired immunity; its spontaneous retrogression signifies the reacquirement of immunity; its obstinate persistence or aggravation may be a sign of the impossibility of active self-immunization against tuberculosis. In conclusion Bauer regrets that the specialists in the fields of these scrofulous symptoms pay so little attention to their connection with tuberculosis.

56 **Acute Hemorrhagic Nephritis in Pulmonary Tuberculosis.**—Tobiesen reports twenty-one cases of this kind; in twelve the nephritis developed in the hospital or in the sanatorium. Only two of the patients were in the first stages of tuberculosis; the others were in the third stage; all but two were males. The course was insidious and no new symptoms developed. When the pulmonary process was not too severe the aspect of the urine rapidly improved and in four of the cases the cure seems to be complete and permanent.

Centralblatt für die Grenzgebiete der Med. u. Chir., Jena

July 26, XI, No. 5, pp. 337-[illegible]. Last indexed July 6, p. 71

- 57 *Acquired Fistula in Gastro-Intestinal Canal. (Die erworbenen Fisteln des Magen-Darmkanals.) H. Hilgenreiner.
- 58 *Angiosclerotic Gangrene of the Legs and Operative Treatment. (Die angiosklerotische Gangrän der unteren Extremitäten und die neueren chirurgischen Bestrebungen zu ihrer Behandlung.) D. G. Zesas.
- 59 Isolated Sigmoiditis and Perisigmoiditis. R. Kohler.

57 **Acquired Fistula in Gastro-Intestinal Tract.**—Hilgenreiner reviews 271 articles published on this subject since his previous compilation in 1905. The records show 160 cases of acquired fistula in the stomach. Those located near the pylorus allow stomach contents to escape so that a prompt operation is indispensable, but when the opening is near the cardia it is liable to heal up spontaneously so that operative treatment need not be discussed for the first six or eight weeks. On suspicion of syphilis specific treatment may do wonders. An alkaline powder scattered on the edges of the fistula prevented corrosion from the gastric juice in Mann's case. The records show 110 cases of a fistula between the stomach and large intestine and two into the duodenum. The technic for managing the fistulas at different points and the complications is reviewed in detail.

58 **Operative Treatment of Gangrene of the Legs.**—Zesas lists 284 articles on gangrene from hardening of the blood vessels and reviews the various operations that have been attempted to remedy it, especially arteriovenous anastomosis which has been done in sixty-three cases. In eight of the cases marked improvement or a cure was realized and this justifies further attempts in this line. The favorable cases were reported by Wieting, Heymann, Glasstein and Bernheim. In twenty-eight of the cases there was thrombosis and in twenty-six cases amputation became necessary. The anastomosis had a favorable influence on the pain in nearly every case, even although this relief was not always permanent.

Deutsche medizinische Wochenschrift, Berlin

July 25, XXXVIII, No. 30, pp. 1,401-1,450

- 60 *Operations on Diabetics. (Indikation und Prophylaxe chirurgischer Eingriffe bei Diabetikern.) F. Umber.
- 61 Anaphylaxis from Excessive Functioning of the Thyroid. (Thyreosis und Anaphylaxie.) G. Wolfsohn.
- 62 Colon Bacillus and Suppuration. (Experimentelle Untersuchungen über das Bacterium coli als Eitererreger.) O. Hess.
- 63 Hemorrhagic Nephritis in Purpura. Six Cases. [illegible]

64 Symptomatic Importance of Changes in the Hearing with Central Neurofibromatosis (Hörbefund bei zentraler Neurofibromatose) Engelhardt
65 *Source of Error in Phenolphthalin Test for Occult Blood (Eine Fehlerquelle bei Anwendung der Phenolphtalin Blutprobe) B Vas
66 Methylene Blue Iodin Test for Acetic Acid in Urine (Neues Verfahren zum Nachweis der Azetessigsäure in Urin) B v Ondrejovich
67 Alimentary Galactosuria in Liver Disease in Neuroses M Hirose
68 Distention of Sigmoid Flexure (Megasigmoideum als Ursache einer 4 monatlichen Verstopfung) R Luria
69 Serodiagnosis of Echinococcus Disease (Komplementablenkung in Echinococcusfällen.) R Hertz.

August 1 No 31, pp 1441-1480

70 *Electrophysical Means to Enhance Action of Drugs and Toxins (Ueber Arzneimittel und Gifte) J Traube
71 Mutation Phenomena in Bacteria Baerthlein
72 Diagnosis of Abdominal Growths from Displacement of Large Intestine (Die Röntgendiagnose intraabdominaler Neubildungen aus der Verlagerung des Dickdarms) E. Stierlin
73 Instantaneous Roentgenography of the Thorax. (Ueber Röntgenschnellaufnahmen des Thorax) A Wolff Eisner
74 Mesothorium Radiotherapy in Gynecology (Ueber Versuche direkter Tiefenbestrahlung in der Gynäkologie mittels radioaktiver Substanzen—Mesothorium) W Friedländer
75 Endobronchial Epinephrin Spray in Asthma and Bronchitis (Wirkung des Adrenalins beim Asthma bronchiale und bei der chronischen Bronchitis.) A Ephraim
76 Epidemic of Jaundice ((Eine Ikterusepidemie) S Weissenberg
77 Treatment of Ruptured Extra Uterine Pregnancy (Zur Behandlung der geplatzten Extrauteringravidität mit freier Blutung.) A Wagner

60 **Operations on Diabetics.**—Umber declares that internists as a rule shrink from having an operation done on a diabetic and are liable to postpone it until too late It is of the greatest importance to determine whether the diabetes in an operative case is essentially severe or whether the phase observed is a transient aggravation by the surgical process of a mild diabetes But everything should be done to reduce the glycosuria as much as possible beforehand and afterward and to ward off coma by prophylactic treatment of acidosis He insists that the indications for operative treatment should not be materially restricted in the diabetic The gangrene in diabetics is the result of hardening of the arteries and not directly of the diabetes In mild cases removal of the gangrened part, with its noxious influence on the metabolism permits the diabetes to resume its former mild character after the transient aggravation of the disease Even severe diabetes with acidosis does not peremptorily contra indicate a needed operation, as he proves by some examples He has found the oatmeal cure" a useful preliminary to an operation following von Noorden's technic If the oatmeal is not well borne, he gives milk or cream in its place, with 120 or 240 gm of apple, raw or cooked The food is given every two or three hours If there is no acidosis or if it subsides under dieting bouillon and fat can be allowed on certain days (bouillon beef marrow, butter tea coffee, brandy, red wine) This helps to reduce the glycosuria more rapidly Sodium bicarbonate or magnesia must be given at the same time until the urine becomes neutral or weakly alkaline, no more When the operation is urgent, he gives the alkali by mouth and gives small doses of opium He warns against intravenous injection of the alkali before the operation as this favors thrombosis The best time for operating on a diabetic seems to be before breakfast and local anesthesia should be preferred when possible

65 **Source of Error in Testing for Occult Blood**—Vas warns that a previously taken purgative containing phenolphthalein may interfere with the findings in the stools

70 **To Enhance Local Action of Drugs**—Traube comments on the law that a toxic substance in the blood or colloidal vehicle becomes less toxic as its particles grow larger An antitoxin may reduce the noxious action of a toxin merely by agglutinating or clumping the particles of the latter The neutralizing action of the antitoxin may be of a physical nature as well as a chemical The workings of this law permit the hope that by applying an alkali locally to the disease focus a drug, taken internally may have its particles so broken apart or otherwise physically altered by the alkali that it will display an elective action at this point Recent experiments on the eye with sodium carbonate showed that it enhanced the action of cocain and atropin, and rendered it more durable.

Medizinische Klinik, Berlin

July 21 VIII No 29 pp 1181-1220

78 Complications of Acute Otitis Media (Komplikationen der akuten Mittelohreiterung) Stenger
79 Importance of Further Research on Diagnostic Importance of Cerebrospinal Fluid (Bedeutung der Untersuchung der Spinalflüssigkeit) F Eichelberg
80 *Prophylaxis of Pulmonary Tuberculosis G Löffler
81 Physical Measures in Treatment of Gastro-Intestinal Disturbances (Ueber die Wirksamkeit der physikalischen Behandlungsmethoden bei Störungen des Verdauungsapparats) S Landsberg
82 Treatment of Ankylosed Joints in Thermal Baths (Mobilmachung von Gelenksteifigkeiten während Thermalkuren) B Bosanyi.
83 Case of Polyneuritis After Salvarsan in Syphilis (Beitrag zum Kapitel R cochlearis n VIII und Salvarsan) O Levinstein
84 Nitroglycerin or Amyl Nitrite in Seasickness O Burwinkel
85 Chemical Explanation of Action of Mercury (Neuere Anschauungen über den Chemismus der Gift und Heilwirkung organischer Quecksilberverbindungen) W Schoeller and W Schrauth

July 28 No 30 pp 1221-1258 and Supplement

86 Relics of Syphilis in the Tissues. (Ueber syphilisreste in den Geweben und ihre prognostische Bedeutung) S Ehrmann
87 Indications for Operative Treatment of Internal Ear Disease (Indikationen zur Eröffnung des entzündlich erkrankten Labyrinths) F Lange
88 Hypoplastic Aorta (Zur klinischen Diagnose der hypoplastischen Aorta bei Lymphatikern) F Stoerk
89 Influence of Therapeutic Baths on Electrocardiogram (Einfluss balneotherapeutischer Massnahmen auf das Herz und die Form des Elektrokardiogramms sowie über die Bedeutung des Elektrokardiogramms für die Klinik der Herzkrankheiten) A Strubell
90 Influence of Sea Climate on the Circulation (Einfluss des Seeklimas auf den Blutkreislauf) J Ide
91 *Iodin and Thyroid Extract as Factors in Exophthalmic Goiter (Jod und Thyreoidin als Ursache der Basedowkrankheit bei Kropfbehandlung) A Pulawski
92 Death Under Alypin Local Anesthesia After Morphin and Adalin G Ritter
93 Dressings for the Eye (Der Verband in der Augenheilkunde) H Feilchenfeld
94 Colloids and Mineral Springs F Krieg
95 Principles of Dietetics (Diätmodifikation—Diätform—Diätverordnung—Diätdurchführung) C Jürgensen

80 **Prophylaxis of Pulmonary Tuberculosis**—Löffler calls attention to the frequency of a mechanical and functional lack of proportion in the chest and lungs of certain children and young people, which gives cause for suspicion of tuberculosis Time reveals that this is a mistake but the conditions favor infection and every effort should be made to help the child to outgrow them Breathing exercises are especially useful, and outdoor play

91 **Iodin and Thyroid Extract as Factors in Exophthalmic Goiter**—Pulawski reports three cases in which he witnessed Basedow symptoms develop in the course of iodin or thyroid treatment of a goiter In one case the Basedow symptoms persisted long after the treatment had been suspended

St. Petersburger medizinische Zeitschrift

July 28 XXXVII No 14 pp 207-220

96 Evolution of the Treatment of Paralysis (Entwicklung der Lähmungstherapie) O Vulpius
97 Senile Arteriosclerosis (Arteriosklerose des Greisenalters) I Hampeln

August 14 No 1 pp 221-[illegible]

98 Industrial Diseases and Injuries (Die Gefährdungen und Schädigungen des Mannesalters durch den Beruf) I Schwarz
99 Influence of Status Lymphaticus on the Course of Diseases (Bedeutung der lymphatischen Konstitution für den Verlauf der Krankheiten.) S Unterberger

Therapeutische Monatshefte, Berlin

August XXVI No 8 pp 549-6[illegible]

100 *Necessity for Official Examination of Claims Made for New Drugs (Prüfungs und Auskunftsstellen für Arzneimittel) F Seel
101 *Diet in Prophylaxis and Treatment of Tuberculosis in Children (Zur Prophylaxe und Ernährungstherapie der Lungenerkrankungen im Kindesalter) H Vogt
102 Epinephrin in Therapeutics (Zur Pharmakodynamik und therapeutischen Verwendung der Adrenalinwirkung) I Calsbock
103 Reform in Advertising Medicinal Articles. (Zur Arzneimittelliste des Deutschen Kongresses für innere Medizin) Arzneimittelkommission des Deutschen Kongresses für innere Medizin.

100 **Official Examination of Claims Made for Medicinal Articles.**—Seel devotes sixteen pages to his arguments on the necessity for, and the possible equipment and scope of a central institution to investigate the medicinal articles on the market He lauds the Council on Pharmacy and Chemistry of the American Medical Association as an ideal arrangement for the purpose and [illegible] that [illegible] has ha[illegible] in force since la[illegible]

drugs not listed in any pharmacopeia to be submitted to the government before they are offered on the market Samples of the article and information in regard to its composition must be submitted Seel looks to the government in Germany to inaugurate something of the kind, and first of all to organize some central institution for the purpose

101 **Diet in Prophylaxis of Pulmonary Tuberculosis.**—Vogt insists that young children should be protected against infections with as much care as a surgeon protects an operative wound Adults with acute affections of the air passages should keep away from the vicinity of young children If this is impossible, they should wear a face mask in the presence of the child. Adults with a tendency to recurring sore throat and bronchitis should be regarded as not suited for service as a nurse or governess The better resistance of breast fed infants to infections is possibly due he thinks, to the larger fat content in the milk This assumption is sustained by the results of experiments on animals, animals given fat in their food displayed a higher immunity to tuberculosis than the animals fed on carbohydrates It is known also that animals with the largest proportion of water in their tissues yield to infection more readily than others Fat rich food favors development of a water poor body, and hence enhances the resistance to tuberculosis Another factor too often neglected in the prophylaxis of tuberculosis is breathing in such a way as to have the diaphragm do its full share of work and thus keep the circulation normal This is even more important for the infant than the adult as the infant is restricted to diaphragm breathing This requires normal tone in the abdominal walls to keep it normal The diaphragm breathing suffers on a diet that causes the abdominal walls to grow flabby or to be unduly distended or with abdominal deposits of fat. On a too long and exclusive milk diet, the infant has flabby abdominal walls, and on too exclusive carbohydrate diet, the child grows too fat and its abdomen becomes distended even when no acute digestive disturbances develop A tendency to dyspnea and cyanosis develops, and the child acquires an intercurrent infection much more readily than a child with strong muscles Still another point to be regarded is that acute digestive disturbances interfere with the circulation in the lungs and hemorrhagic infiltration is liable thus providing a nest in which secondary bronchopneumonia may develop This form of disturbance in the circulation in the lungs is most common in infants who lie mostly on their backs With strong muscles the child sits and stands more, and this in turn aids in warding off tuberculosis The diet is thus seen to be the key that opens or locks the door against tuberculosis

Therapie der Gegenwart, Berlin

August LIII No 8 pp 337 384

104 Thorium in Therapeutics (Der jetzige Stand der Thorium X Therapie mit eignen Beobachtungen bei Leukämie und Anämie) G Klemperer and H Hirschfeld.

105 *Differential Atmospheric Pressure in Treatment of Heart Disease (Praktische Ergebnisse bei der Behandlung Herzkranker mit Druckänderung der Lungenluft nach meiner Methode) E. Albrecht Concluded in No 9

106 *Stuttering (Zur Kenntnis des Stotterns für den praktischen Arzt) T Hoepfner

105 **Differential Pressure in Treatment of Heart Disease** —Albrecht applies different atmospheric pressure, varying from positive to negative and transitional phases at one sitting in treatment of heart disease He aims to alter thus mechanically the circulation of the blood through the lungs and thus exert an active influence on the abnormal distribution of the blood in the heart Previous efforts in this line have been directed exclusively to altering the blood content in the lungs By alternating and combining negative and positive pressure with expiration into ordinary air a remarkable effect on the heart is produced especially in cases of dilatation He has now a record of 20 2 sittings of the kind in only 195 was negative pressure alone used He has never witnessed any by effects or inconveniences in any of his ninety two patients with various forms of heart or vascular disease He cites a number of typical cases but does not describe the apparatus he uses

106 **Stuttering**—Hoepfner warns physicians to be on the watch for the early symptoms of stuttering, possibly in children only 2 or 3 years old He comments on the great handicap that stuttering is to any individual, rendering him unsocial and altering the character The assumption that stuttering can be outgrown is very rarely sustained by facts, he says He has never known idiots to develop stuttering it is most common in the mentally unbalanced, degenerates and paranoiacs Treatment therefore should be more than merely to correct the speech

Wiener klinische Wochenschrift, Vienna

July 25 XXV, No 30 pp 1155 1182

107 Case of Hysteric Aphasia (Zur Kenntnis der hysterischen kortikalen motorischen Aphasie mit Amnesie Alexie und Agraphie) A Schönfeld

108 Spherical Concretions in Dammed Appendix. (Kugelbildungen im Wurmfortsatze) H Poindecker

109 Alimentary Galactosuria of Nervous Origin (Ueber neurogene Galaktoseintoleranz) H Pollitzer

110 The Cranial Nerves in Early Syphilis. (Zur Kenntnis der Hirnnervenstörungen im Frühstadium der Syphilis Speziell nach Salvarsan) A. Zaloziecki and R Frühwald Commenced in No 29

111 Serodiagnosis of Cancer (Zur Einwirkung des Karzinomserums auf Karzinom und zur Oxyproteinsäurevermehrung bei Karzinom.) H Salomon and F Freund

August 1 No 31 pp 1183 1214

112 *Prognostic Value of Urochromogen Reaction in Urine in Pulmonary Tuberculosis (Verwertung des Urochromogennachweises bei der Indikationsstellung der Tuberkulinbehandlung) M and A Weisz

113 Spastic Hour Glass Stomach as Sign of Duodenal Disease (Spastischer Sanduhrmagen bei duodenalen Affektionen) A Baron and T Barsony

114 General Infection With the Neisser Gonorrhea Micrococcus K Rotky

115 Treatment of Syphilis. L Löw

112 **Urochromogen in Urine as Guide in Treatment of Tuberculosis**—Weisz regards a positive diazo reaction as an indication that the system is incapable of vigorous recuperation, and consequently that tuberculin treatment has no hopes of success as this requires the active cooperation of the body The presence of urochromogen in the urine is part of the diazo reaction and even precedes the latter, so that determination of it by the simple permanganate test answers all purposes and reveals the cases in which the tuberculosis is beyond help from tuberculin and those in which the body is liable to respond favorably to its action, thus practically deciding between life and death All that is necessary is to add 3 drops of a 1 to 1,000 solution of potassium permanganate to 1 c c of urine diluted with 2 c.c of distilled water The appearance of a yellow color reveals the presence of urochromogen the fluid remaining clear Weisz gives the ultimate history of twenty three patients tested in this way, the outcome confirming the great prognostic value of this test He accepts positive findings as contra indicating tuberculin treatment, and advises occasional repetition of the test during a course of tuberculin treatment [Compare with abstract 30 in THE JOURNAL, Feb 24, 1912,, p 587]

Zeitschrift für Kinderheilkunde, Berlin

July VI No 4 pp 265 364

116 *Chronic Albuminuria After Scarlet Fever (Chronische Albuminurien nach überstandener Scharlachnephritis) J Rosenfeld and S v Rechtenstamm

117 Scrofula (Was ist Skrofulose) K Hochsinger

118 Natural and Acquired Defective Thyroid Functioning (Ueber hypothyreotische Konstitution und über frühzeitig erworbene Athyreose) E. Wieland

119 Masturbation in Children (Beobachtungen über kindliche Onanie) J K Friedjung

120 Acute Painful Swelling of the Breasts in Older Children (Ueber die akute schmerzhafte Brustdrüsenschwellung grösserer Kinder— Mastitis adolescentium) J Zappert

116 **Chronic Albuminuria After Scarlet Fever**—Ninety three patients from the Vienna children's clinic who had had nephritis following scarlet fever were reexamined as to the condition of heart blood pressure and urine Fifty two of them had had albumin in the urine when dismissed from the hospital The interval since dismissal varied from one to ten years In no case was there a severe chronic nephritis, ten children showed albuminuria in seven there were casts accompanied by sediment and in one by increased blood pressure The postural test was applied (kneeling for ten minutes in a lordotic position) and twenty eight of the children showed albuminuria after this test while it had been absent before and in eight cases there was a marked increase in the urine The severity of the original kidney affection—so far as it

was shown by uremic symptoms—bore no relation to the later albumin findings, but those children who had left the hospital entirely free from kidney trouble showed a much smaller percentage of albuminuria than those who had been dismissed with albumin still in the urine Tables are given showing in detail the findings

Zentralblatt für Chirurgie, Leipsic

July 20 XXXIX No 29 pp 985-1016

121 Formalin Injections in Echinococcus Disease F Franke
122 Improved Technic for Suture of Vessels (Zur Technik der Gefässnaht.) E Jeger and H Lampl

July 27 No 30 pp 1017-1048

123 Improved Technic for Draining Hepatic Duct H Kehr
124 *Blocking the Sciatic Nerve. (Leitungsanästhesie des N ischiadicus) W F Jassenetzky Woino
125 *Treatment of Elephantiasis by Excision of Tissue (Die operative Behandlung der elephantiastischen Oedeme) E Kondoleon

August 3 No 31 pp 1049-1088

126 Technic for Irrigation in Peritonitis (Zur Methodik der Spülung bei eitriger Bauchfellentzündung) R Gutzeit
127 Maximal Relaxation of Rectal Walls as Early Symptom of Septic Appendicitis (Die Maximaldehnung des Mastdarms als ein sehr frühes Symptom bei Appendicitis acuta septica) C Springer
128 Advantages of Plaster Cast After Resection of the Knee (Zur Nachbehandlung der Kniegelenksresektion) K Blauel

124 **Blocking the Sciatic Nerve**—Woino states that three years of experiments have demonstrated that the best point to reach the sciatic nerve is at the intersection of a horizontal line through the tip of the greater trochanter and a vertical line passing through the outer margin of the tuberosity of the ischium In three of twenty cadavers tested the horizontal line had to be from 1 to 1 5 cm. higher, but in all the others the nerve was directly accessible at this point, just as it emerged from the great sacrosciatic foramen In every cadaver a stain injected at this point bathed or permeated the nerve The anesthetic acts more rapidly and intensely when from 5 to 10 drops of epinephrin are added to the 10 or 20 c c of the 2 per cent anesthetic he uses to block the nerve He inserts the needle in the corner of a square wire frame, two sides of which form the guiding lines Operations on soft parts can then be commenced in half an hour, but on bones not before an hour He has applied this technic in twelve cases with gratifying results In most cases it is necessary to block at the same time the femoral nerve, according to Läwen's technic These technics, as also Kulenkampff's method of blocking the brachial plexus, might be utilized, he suggests, for injecting tetanus antitoxin

125 **Operative Treatment of Elephantiasis.**—In six cases at Athens Kondoleon has successfully removed strips of fascia in treatment of elephantiasis The edema subsided afterward partially or totally, and the leg became soft, but the interval of one or two months since is too brief to determine the ultimate outcome The relief even to date he declares, has been such as to justify the operation

Zentralblatt für Gynäkologie, Leipsic

July 20 XXXVI No 29 pp 945-976

129 Advantage in Tying the Umbilical Cord Only Once (Ist eine doppelte Unterbindung der Nabelschnur bei Entbindungen notwendig oder vorteilhaft?) W Möller
130 The Midwife Question (Zur Reform des Hebammenwesens) F Weisswange

July 27 No 30 pp 977-1008

131 *Management of Third Stage of Labor (Ueber das Halten der Gebärmutter Erfahrungen mit der Dubliner Methode in der Leitung der dritten Geburtszeit) J Reich
132 Intrapartum Transmission of Germs in Vagina to the Child's Mouth Umbilicus or Mamma and Secondary Infection of Mother's Breasts (Der Uebergang mütterlicher Scheidenkeime auf das Neugeborene und indirekt auf die Mutter) W Lindemann and F Noack
133 Isolation of Syncytium Cells (Die Isolierung von Syncytium ev Placentarzellen) Kiutsi
134 Criminal Abortion (Der Kampf gegen die kriminelle Fruchtabtreibung) M Hirsch

August 3 No 31 pp 1009-1040

135 *Death from Prophylactic Camphorated Oil Injection (Tödliche Kampfervergiftung nach Anwendung von offizinellem Kampferöl zur postoperativen Peritonitis-prophylaxe) W Rübsamen
136 Ovarian Abscesses of Appendicitic Origin R Wanner
137 Attempt at Abortion with Tubal Pregnancy Three Cases (Abortversuche bei fehlender Schwangerschaft und bei Tubargravidität) I Jung
138 Eleventh Case of Artificial Vagina Made from Intestine (Bildung einer künstlichen Vagina aus dem Dünndarm) Papanicol

131 **Management of Third Stage of Labor**—Reich has paid special attention to the effect displayed by various methods of management of the third stage of labor on the hemorrhage after cesarean section His experience showed that the more rapidly the child was extracted after the uterus had been opened the less the hemorrhage Also that when the separation of the placenta was left to the natural forces while the uterus was held in concentric compression (what he calls the English or Dublin method) the hemorrhage was least severe Restricting the hemorrhage to the minimum is of extreme importance for rapid convalescence and the concentric compression best guarantees this he declares He has applied it systematically in the last 800 maternity cases with excellent results

135 **Fatal Camphor Intoxication After Prophylactic Injection.**—Rübsamen's patient was a woman requiring panhysterectomy for an ovarian cyst with adhesions The operation was done under light scopomorphin ether anesthesia Before suturing the wound 170 c c of the standard 10 per cent camphorated oil was poured into the abdominal cavity The pulse was 130 regular and full The patient died two days later, the pulse climbing to 160 the necropsy findings pointed to camphor poisoning All but 70 c c of the 10 per cent camphorated oil had been absorbed from the abdominal cavity

Zentralblatt fur innere Medizin, Leipsic

August 3 XXXIII No 31 pp 753-776

139 *Importance of Salicylic Medication in Chorea (Ueber Sydenham's sche Chorea) F W A Weber

139 **Chorea**—Weber treats chorea as if it were a case of acute articular rheumatism, and has been much pleased with the results He has the tonsils removed as an additional measure in case there is suspicion of anything wrong in them He does not hesitate to give children from 1 5 to 3 gm of sodium salicylate daily or from 0 6 to 2 gm of salicylic acid supplemented by sweating procedures if the heart is in good condition

Brazil Medico, Rio de Janeiro

July 15 XXVI No 27 pp 273-282

140 Case of Toxoplasmosis in the Dog I Millagno

July 22 No 28 pp 283-294

141 Venereal Granuloma and Its Microbe H de B Aragão and G Vianna

August 1 No 29 pp 295-304

142 Certain Signs of Paralysis Agitans A de Castro

Gazzetta degli Ospedali e delle Cliniche, Milan

July 16 XXXIII No 85 pp 881-888

143 Dubious Findings in Regard to Sulphur Reaction in Urine of Cancer Patients (Reazione specifica nell orina dei cancerosi?) G Malan

July 18 No 86 pp 889-896

144 Advantages of Picric Acid in Various Fields of Medicine A Brun

July 21 No 87 pp 897-912

145 Invasion of the Blood by Various Germs (Concetti moderni della invasione schizomicetica ematica e della suppurazione) L Bertarelli
146 *Proteolytic Test of Pancreas Functioning (L esame della funzione pancreatica studiata con la ricerca del fermento proteolitico) G Libertini

July 23 No 88 pp 913-920

147 Results of Twelve Years of Prophylaxis of Yellow Fever (Risultati della profilassi contro la febbre gialla dopo dodici anni di applicazione) E Bertarelli

July 28 No 90 pp 929-944

148 Bactericidal Action of Alcohol F C Sottile

July 30 No 91 pp 945-952

149 *Hematoma in Pelvic Cellular Tissue (Ematoma o trombo del cellulare pelvico) R Cingalla

August 1 No 92 pp 953-960

150 Disadvantages of Ether Anesthesia by Way of the Rectum (La eteronarcosi rettale non e preferibile alla cloronarcosi) A Federici

146 **Tests for Pancreas Functioning**—Libertini has applied the proteolytic test in fourteen cases and found the response harmonize with the clinical findings and the results of other tests In one patient with mild diabetes the pancreas seemed to be functioning nearly normally the trypsin index being 1 to 20 and the amylase 1 to 130 while in another case in which the diabetes was very severe the trypsin index was 0 and the amylase 450 Normal findings in regard to proteolysis are not conclusive but the absence of trypsin or its presence only in small amounts demonstrates that the pancreas

is not functioning properly He summarizes the various methods of applying the test, Carpi's method (1910) seems most exact but he preferred Schlecht's simple technic, namely, dropping a gelatin capsule, weighing exactly 1 gm, into each of a set of test tubes containing stool diluted with water to a concentration of 1 01, 1 2, 1 3, 1 4, or 1 5 The amount of fluid in each tube is reduced to 1 c c before the capsule is added, and the more or less rapid digestion of the capsule is the reaction on which the test is based The index is the dilution of the stool in the test tube giving the reaction after the set of tubes has been kept at 40 C for an hour The patient takes an active purgative the evening before to hasten the stool along before bacterial action becomes pronounced This also increases the ferment content of the stools It is best to keep the patient on a standard diet for a day or so beforehand to facilitate comparison of the findings.

149 **Hematoma in the Pelvic Cellular Tissue**—Cinaglia remarks that while a hematoma in the vulva or vagina is readily diagnosed this may be more difficult with a hematoma in the pelvic cellular tissue, which may long escape recognition The rapid development is suggestive, as also the spherical form of the tumor, its elastic consistency, the severe pains and especially its location on the side Treatment should be expectant as a rule unless the anemia compels speedy operation The hematoma is generally absorbed but rupture or infection of the hematoma is possible Continuous pains and fever suggest infection and require prompt operative measures as also when the hemorrhage is threatening In a personal case reported the hematoma developed during delivery and severe pain kept up afterward but as the pulse and general condition were good, Cinaglia merely gave a little morphin and applied ice to the ecchymotic area which gradually developed in the vulva buttocks and perineum The pains ceased in three days and the blood was gradually reabsorbed until only a few traces were left by the end of the second week

Riforma Medica, Naples

July 20 XXVIII No 29 pp 785 812

151 *Test for Hyperchlorhydria (Considerazione sopra una personale reazione atta a dimostrare un eccesso di HCl nel succo gastrico) A Cipollina
152 Advantages of Inguinal Method of Access to Femoral Hernia (Dei vantaggi del metodo inguinale di cura radicale dell ernia crurale dimostrati i un caso di ernia inguino-crurale strozzata) F Magni

July 27 No 30 pp 813 840

153 Sulphur Reaction in the Urine of Cancer Patients (La nuova reazione dello zolfe nelle urine dei cancerosi di Salomon Saxl) M Mazzitelli
154 *The Acetic Acid Sputum Test in Diagnosis of Tuberculosis (La reazione di Rivalta introdotta nell esame degli espettorati sua importanza diagnostica) R Casali
155 Venous Thrombosis in Infants Three Cases (Sulla trombosi delle vene nell eta infantile) E. Mensi

August 3 No 31 pp 841 868

156 Aneurysms of the Sinuses of Valsalva T Carpentieri

151 **Color Test for Hyperchlorhydria**—Cippolina here brings the evidence down to date in regard to the color test he published eight years ago Further experience has confirmed its reliability he says if certain simple precautions are observed and the reaction is complete in two or three minutes He gives first a test breakfast of 200 gm boiled potato well salted with 200 c c of white wine diluted to one third The test is made by mixing 2 c c of filtered gastric juice with 0.5 c c of anilin water and then adding 4 or 5 drops of the standard solution of sodium hypochlorite A yellow tint and the tendency of the water to become turbid show that there is little if any acid present With a persisting violet tint the test should be repeated with gastric juice diluted to one half with distilled water Persistence then of the violet tint indicates that there must be more than the maximal normal proportion of HCl. The reaction is very sensitive even a fraction of a milligram of HCl sometimes turning the scale in favor of the yellow or violet tint

153 **Sulphur Reaction in the Urine With Cancer**—Mazzitelli has applied Salomon and Saxl's technic in fifty cases with special reference to the findings in cancer cases with or without cachexia In eighteen cases of cancer without cachexia the reaction was positive in fourteen and in all but two of the ten patients with tuberculosis The reaction was positive in sixteen of twenty six patients with cachexia of various origin including eleven with cancer and four with tuberculosis In the tuberculous giving a positive reaction were two patients with advanced apical processes but no fever one with a febrile process in the knee, and three with moderate apical findings One patient with the juvenile form of diabetes responded positively, and one with influenzal bronchitis [The technic for the test was described recently anew in The Journal, Aug 31, p 738]

154 **Rivalta's Acetic Acid Test for Albumin in Sputum**—Casali has slightly modified this test which seems to be of value in differentiation of tuberculosis (it was described in The Journal, July 9, 1910, p 178), and tabulates the findings in sixty three patients with various affections including thirty four with tubercle bacilli in the sputum They show that, if lobar pneumonia can be excluded, the findings of the test may be regarded as conclusive when the sputum is diluted to above one tenth, positive findings testifying to the presence of a tuberculous process in the lungs He reviews the history and mechanism of the test and experiences in this line on record Ten c c of sputum are thoroughly stirred with 10 c c of distilled water and then slowly filtered Two drops of acetic acid are stirred into a glass containing 100 c c of distilled water Holding the glass before a light, a drop of the filtrate is cautiously dropped into the fluid In case of a positive reaction, the drop becomes surrounded with a little cloud as it falls through the fluid By graduated dilution of the filtrate with a weak solution of sodium carbonate (one drop in 100 c c of water), the test can be carried to its extremest limits

Hospitalstidende, Copenhagen

July 24, LV No 30, pp 833 856

157 Principles of Dietetics (Diætmodifikation—Diætform Diæt forordning—Diætgennemførelse.) C Jürgensen Commenced in No 29
158 Balanitis as Complication of Gonorrhea (Om Forholdet mellem Balanitis areata og de endogene gonorrhoiske Lidelser) O Haslund

July 31 No 31, pp 857 880

159 The Carbon Dioxid Tension in the Alveolar Air in Acute Febrile Diseases (Undersøgelser over Kulsyrespændingen i Lungernes Alveolærluft ved akut febrile Sygdomme) I S Fridericia and O Olsen

August 7 No 32 pp 881 904

160 A Case of Bradycardia with Changes in the Bundle of His Tawara (Et Tilfælde af Bradycardi med Forandringer i His Tawara s Bundt) O V C L Petersen and H C Hall

Ugeskrift for Læger, Copenhagen

July 18 LXXIV No 29 pp 1047 1076

161 *Treatment of Eclampsia with Injection of Air Into the Mammæ (Behandling af Ekklampsi med Luftinjektion i Mammæ) C de Fine Licht

July 25 No 30, pp 1077 1106

162 Trichinosis in Denmark (Bidrag til Trikinosens Forekomst i Danmark) H M Høyberg

August 1 No 31 pp 1107 1144

163 Catarrh in Greenland (Erfaringer om Luftvejskatarrers Optræden i Grønland.) A Bertelsen

August 8 No 32 pp 1145 1174

164 Rapid Treatment of Scabies (En ny Hurtigkur mod Fnat) E L. Ehlers.
165 Recurrence of Cancer Sixteen Years After Removal of Adenoma in the Mamma S Hansen

161 **Injection of Air Into the Mamma in Treatment of Eclampsia.**—This measure has proved its efficacy in an afebrile affection common in cows after calving, the cow may be healthy and strong but a few days after calving paresis develops and the animal falls and is unconscious Convulsions are sometimes observed and the animals died as a rule, until it was discovered that injection of a solution of potassium iodid into the udder put an end to the disturbances Later it was found that the same benefit was derived from injection of air alone by a bicycle pump Licht thought that possibly puerperal eclampsia might be amenable to the same measure and he reports its application in three clinical cases In every instance the convulsions ceased after the injection of air from a morphin syringe A total of 300 or 400 c c of air was injected at five or six points around each nipple, supplemented by the usual measures No by effects were observed from the injection of air, but one patient succumbed later to puerperal sepsis

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SECTION ON OPHTHALMOLOGY

PAPERS[†] AND DISCUSSIONS

SYMPATHETIC CHORIOIDITIS *

ADOLF ALT, M.D

ST LOUIS

Since the immortal Koch first succeeded in proving to a doubting medical world the microbic origin of disease, and since we have learned more and more of the manner in which microbes gain entrance primarily or secondarily into a wound and how, having once entered they may invade the whole body, the search for the specific microbic irritant in such diseases in which it has as yet not been found is continuously going on

This is also the case with sympathetic inflammation, and quite naturally so In the vast majority of these cases, of which after all even a very busy man sees not very many in a life-time, the affection begins with a wound, whether accidental or operative, in the one eye, which causes this eye to become more or less severely inflamed Usually only a few weeks later the fellow eye also becomes the seat of an inflammation, which in the great majority of cases leads to its destruction What more natural, therefore, than to assume that the inflammatory process in the first affected eye is due to a microbic infection, which has taken place when the wound was received, or secondarily, and that the resulting inflammation, or perhaps its cause itself, travels gradually over to the fellow eye? What more simple than to assume that the way by which this migration takes place is the preformed way of the optic nerve and intervaginal space, around in front of the chiasma and down the nerve and the intervaginal space to the fellow eye?

That such a transition of noxious substances and microbes from one eye to the other is possible has, it seems, long ago been proved experimentally by R Deutschmann, H Gifford, myself and others Most recently such experiments with most brilliant results have been made and published[1] by F Deutschmann, who also found that the anterior half of the chiasma showed signs of inflammation and thus supplied a link in the chain which has been hitherto wanting After such definite results this possibility surely cannot be doubted by any one Unfortunately, however, but few observers have apparently been able to demonstrate, at least to their own satisfaction, the offending microbes in the injured eye even The majority were unable to find any Even in his now celebrated series of eyes with sympathizing inflammation, from which Fuchs evolved a picture which he considers an absolutely separate one and characteristic of this form of inflammation, quite distinct from that of a septic endophthalmitis, he did not find any microbes In a number of cases, which I have studied most diligently, I have been no more fortunate Still, I doubt whether our present inability in this direction should force us to assume that the unknown specific microbe of sympathetic inflammation circulates in the blood and comes into activity in the eye only after an injury has been received, or to assume that, at the time when the first affected eye is removed and subjected to microscopic examination, the infecting microbes have been destroyed by the activities of the tissues of the eye, and perhaps, their toxins only have kept up the inflammation Yet, after all, whatever theory we assume—and you know there are others not mentioned here—especial and exceptional conditions must prevail in all such cases, or sympathetic ophthalmia would be a much more common disease

There are other puzzling questions Why should sympathetic ophthalmia sometimes appear years after the original wound has been received—sometimes many years afterward? Schirmer thinks that the greater the interval between the affections of the two eyes, the less probability of a correct diagnosis Yet observers whose judgment can hardly be doubted have described such late cases We know that there are microbes which may, so to speak, remain dormant or inactive in the human body for years and then be again aroused to activity A similar condition might account for such late cases of sympathetic inflammation Why does sympathetic inflammation appear in a variety of forms? In a general way, of course, we know that it involves preeminently the uveal tract, but, it seems, it will not do to look on the different pictures under which sympathetic inflammation appears as simple gradations of one and the same uveal affection Whoever has seen and studied a case of sympathetic optic neuritis—and we shall hear something about such cases at this meeting—or a case of so called sympathetic chorioiditis, must surely come to the conclusion that these are special and distinct forms of sympathetic inflammation

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* Chairman's address.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[†] As the footnotes indicate certain papers are here printed in abbreviated form

[1] Deutschmann F Arch f Ophth. (von Graefe's) 1911 lxxviii, 404

Why does the removal of the first affected eye apparently have a beneficial influence on the course of an already well-established—that is, macroscopically recognizable—sympathetic inflammation? Elschnig says it has no such influence, yet how can we doubt it, when we see an eye saved after enucleation of its injured fellow, which, had we waited longer before performing this operation, according to our experience and observation, would in all probability have been lost?

While, then, to a great many of us, although no specific microbe has been as yet demonstrated, a microbic origin seems still to be the most probable explanation of this peculiar inflammation. Elschnig has lately attempted another one, which has in it much that is enticing and is certainly worthy of careful study. In assuming that sympathetic inflammation is an anaphylactic uveitis due to the absorption of disintegrated uveal tissue in the injured eye, and that both sympathizing and sympathetic inflammation are due to the anaphylactic reaction of a thus oversensitized uveal tissue to an anomalous condition in the organism, Elschnig has directed the theorizing about sympathetic inflammation into a new direction. Perhaps his may prove to be the right conception. Yet like all theories, that of Elschnig has its weaknesses, and they have already been pointed out by Reis.[2]

It seems then that there is still room for much study in this chapter of ophthalmology and still a chance for glorious achievement and a laurel wreath for the one who some day shall solve this riddle. To accept such a possibility it is only necessary to remember how often the malarial germ was apparently found and denied and more recently how many organisms have been demonstrated as the contagium of syphilis, before Schaudinn succeeded in proving that the *Spirochaeta pallida* was the real one, and I still hope for a similar solution of the cause of sympathetic inflammation.

After these rambling remarks, permit me now to relate the case of sympathetic chorioiditis, a form of sympathetic inflammation which according to literature has not been observed very often. Schirmer, in the second edition of Graefe-Saemisch, mentions only Colsmann, Rothmund and Eversbusch, Dolschenko, Leplat and himself as having described characteristic cases of sympathetic chorioiditis without a previous sympathetic iridocyclitis. He states, further on, that, after or contemporaneous with a sympathetic iridocyclitis, chorioiditic changes have been observed by Graefe, Haab and Hirschberg. A beautiful illustration of a case of sympathetic chorioiditis made by Haab accompanies Schirmer's work. The following case is the first of this kind of sympathetic inflammation which I have been in a position to observe.

Patient.—E. R., aged 9, a thin boy, who however, showed no specific dyscrasia, was brought to my office on Nov. 5, 1911, his left eye having been injured, probably by a playmate on November 1. He has never given an explanation of how the injury came about, but his family think that the offending instrument was the end of a dirty whip.

Examination.—When I first saw him there was some chemosis and ciliary injection of the injured eye, yet the pupil was fairly large, but slightly displaced toward a wound about 3 mm. in length, which was situated exactly in the corneoscleral margin of the inner upper quadrant. The wound had penetrated the corneoscleral tissue and the iris at its very periphery and was plugged by a small amount of vitreous body. The iris periphery was also caught in it and some pus could be seen lying just in front of the apex of the ciliary body. The lens was perfectly opaque, rendering an ophthalmoscopic examination impossible. Vision was *nil*.

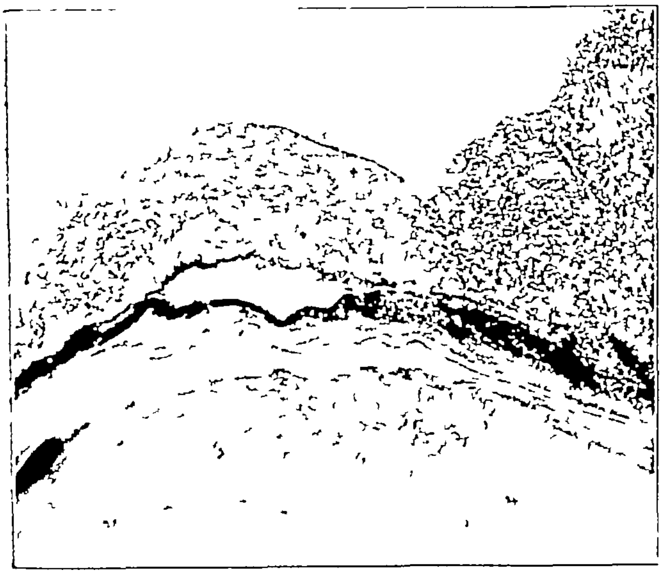

Fig. 2.—Iris thickly infiltrated with lymphocytes. Hemorrhagic spaces severing the posterior layers. Lens capsule wrinkled. Traumatic cataract.

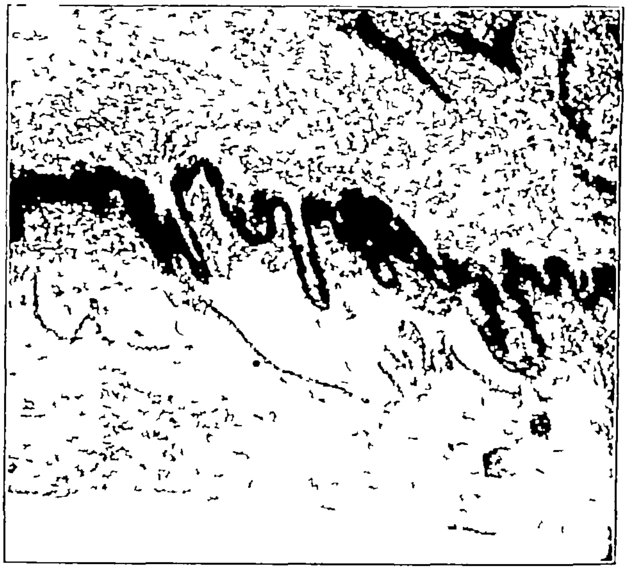

Fig. 3.—Above: ciliary body filled with lymphocytes. Paler parts epithelioid cells. Below: cyclitic membrane. Non-pigmented epithelium of ciliary body pressed inward in the shape of blebs.

Treatment and Course.—In spite of a careful cleansing of the wound, the application of the necessary local treatment and the immediate internal administration of mercury and aspirin the inflammatory symptoms increased for some time, a small hypopyon made its appearance and the pupil gradually became much smaller. Yet the boy never acknowledged suffering any pain whatever. An *x*-ray examination showed no foreign body within the eye.

Gradually the inflammatory symptoms receded although the pupil was finally closed up altogether, and the eye became somewhat softer. December 5 the patient had distinct light perception and I almost dared hope that it might be possible to save the eye some sight by operative measure.

During this whole period of time the fellow eye was of course watched anxiously and most carefully, but never showed the slightest sign of irritation.

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[2] Arch. f. Ophthal. (v. Graefe's), 1911, lxxx.

Now, the patient, in spite of the earnest warnings given to his parents, disappeared from observation and did not return till Jan 11, 1912, with the statement that he was well and had neither had drops put into the eye nor taken any medicine internally for three weeks And it proved to be fortunate that he returned just then For, as soon as he sat down before me, I noticed a flushing of the episcleral vessels in the good eye and saw, also, that the pupil was contracted It hardly reacted to light Atropin solution, immediately instilled, produced its dilatation *ad maximum* so promptly that I thought that no iritis could as yet have developed Yet, a broken circle of minute brownish pigment deposits corresponding with the size of the pupil could be demonstrated on the anterior lens capsule, both by oblique illumination and the ophthalmoscope There was, also, a fine, dust like opacity of the posterior parts of the vitreous body, the papilla was reddish, its outlines were veiled here and there and the retinal veins were somewhat tortuous I do not think there can be any doubt but that this eye was just beginning to be attacked by sympathetic inflammation

In spite of an urgent message to him the father brought the boy back to me only two days later He at first refused to believe in the urgency of removing what he thought now was a healthy eye, but finally yielded to my entreaties For external reasons I had the boy taken to the Free Children's Hospital, where Dr W F Hardy was kind enough to enucleate the left eye the same evening (January 13) and to undertake the further treatment Dr Hardy gave the following short further history of the case

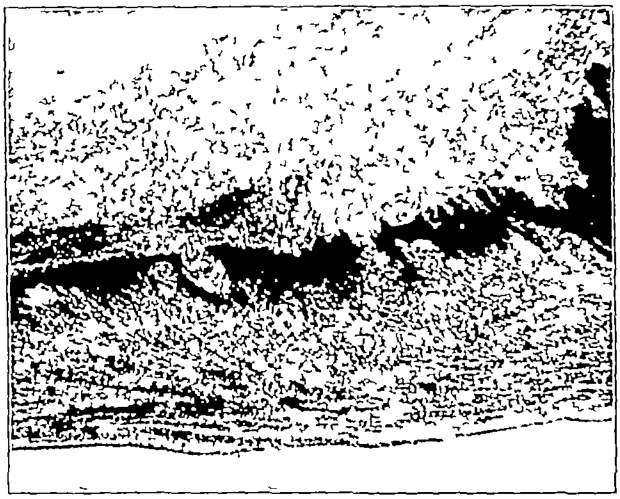
Fig 4—Anterior part of ciliary body infiltrated with lymphocytes and epithelioid cells the latter have broken through the lamina vitrea in several places. Near the middle part to the right several giant cells

'The *patient was kept in the hospital for the six weeks* following operation for treatment and observation

'When he entered the hospital the right eye showed the following conditions slight episcleral injection, pupil *ad maximum* dilated, numerous minute pigment dots arranged in a circle on the anterior lens capsule, evidently remnants of a slight iritis The vitreous body was somewhat cloudy and the outlines of the disk were indistinct The retinal vessels were tortuous

'The treatment consisted in keeping the pupil widely dilated, daily mercurial inunctions and aspirin (30 grains) internally Under this treatment a gradual improvement took place The pigment spots on the lens capsule disappeared the outlines of the disk became more and more distinct and the vitreous body cleared up At the end of two months the conditions of this eye were apparently again normal

'At this time Dr Alt, who saw the case with me every Sunday detected a number of chorioidal spots in the inferior equatorial region, the remainder of the fundus being free from them

Up to this date (May 5) the treatment has been but slightly relaxed and the eye now appears normal, except for the chorioidal spots, a slight redness of the papilla and a slight tortuosity of the retinal veins

His V = 20/15 with a + 1 75 D lens he wears an artificial eye with great comfort"

I wish to describe a little more in detail what I know about the chorioidal spots In the first place, I had carefully examined the eye with the ophthalmoscope on March 12, when there was nothing pathologic to be detected in the chorioid but one week later on March 19, I found the chorioidal spots They therefore had put in appearance some time between these two dates That means that the chorioiditis developed about four and one-half months after the injury to the first affected eye and a little over two months after the onset of the sympathetic inflammation, and, furthermore at a time when all other symptoms, except a slight redness of the papilla and a slight tortuosity of the retinal veins, had disappeared

When I first saw these spots, I counted seven of them They differed in size and appearance, but were striking in the uniform round and sharp outline, as if they were cut out with a punch The two largest ones were about the size of a fifth of the disk diameter, the smallest ones were minute dots The larger ones had an ivory color, the smaller ones were more yellow and the smallest ones had a bright golden shining appearance, which somewhat resembled that of colloid excrescences of the chorioid, but was perhaps more brilliant During the following week some new spots of the same sharp round outline made their appearance One of the ivory colored larger spots showed a central pigment spot Near this one a large hemorrhagic effusion sometime later appeared in the chorioid, which was oval in shape and a little larger than the disk Gradually the larger spots assumed a more pinkish tint and some slight pigment disturbances were visible at their edges At this date, some of the spots have altogether disappeared, but some of the smallest ones still shine with their peculiar luster

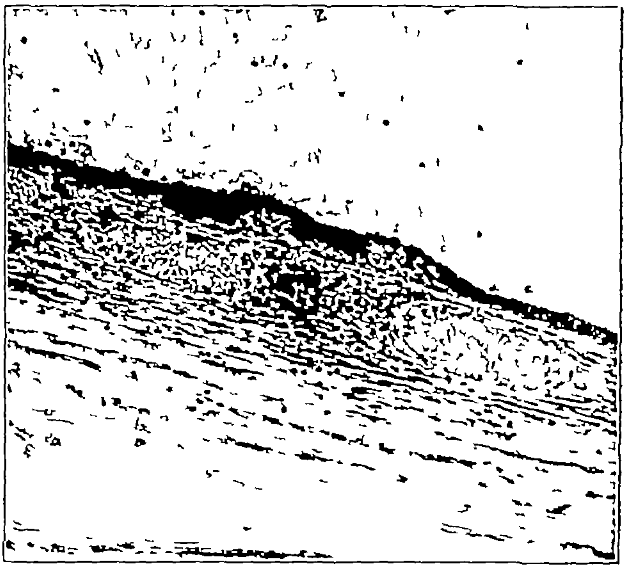
Fig 6—Anterior part chorioid Small nests of epithelioid cells forming on the lamina vitrea derived from the pigment epithelial cells Lymphocytic infiltration

We have, then, in this case, one of the few hitherto observed cases of characteristic sympathetic chorioiditis without a previous cyclitis though preceded by a neuritis, and by an iritis which was of the mildest type and which never interfered with an ophthalmoscopic examination in the least.

The microscopic examination of the enucleated injured eyeball proved to be as interesting as was the clinical observation.

When I cut the eyeball equatorially in two, the slightly yellow fluid vitreous body ran out. Of this I made a number of specimens, which I stained after different methods for bacteria. However, I found none. There were only a few leukocytes and lymphocytes in the fluid.

From the site of the healed wound a band of tissue could be traced entering the eyeball between the iris periphery and the ciliary body and joining a cyclitic membrane behind the shrunken and cataractous lens. The anterior surface of the lens was covered throughout by the swollen iris. The anterior chamber was deep and a small amount of hardened exudate adhered to its walls. The ciliary body, as usual, was merged everywhere into the cyclitic membrane. There were a number of hemorrhages in the retina without any special arrangement. The most peculiar picture, however, was that of the papilla and the macular region. The papilla could barely be recognized as such, although it protruded somewhat into the eye, since its surface was perfectly flat. From its temporal side a large transparent vesicle was seen to start, which reached beyond the macula lutea. Its anterior wall floated about and it contained some blood. At first this impressed me as a detached part of the retina, but when studying it with an electric lamp I found that the retina could be seen forming the bottom of the vesicle.

The following are the results of the microscopic examination.

Microscopic Examination.—The band of tissue which reaches inward from the site of the wound is solid connective tissue, which has replaced the vitreous body originally lying there. It fills the former gap and joins the cyclitic membrane. There are few blood-vessels in this tissue. In the episcleral and subconjunctival tissue there are a few foci of infiltration with lymphocytes (Fig. 1).

The iris tissue is very densely infiltrated with lymphocytes. In a general way this infiltration is densest in the posterior parts, yet there are here and there places in which these cells lie so close to each other that no space seems to be left between them. In the sections taken from the neighborhood of the pupil only a few transverse sections of the filled blood-vessels are found near the anterior iris surface, while in sections from the iris periphery a great many are still visible. Between the lymphocytes numerous plasma cells and erythrophils are found. Near the pupillary edge of the iris the pigment layer on the back of the iris has become detached, so as to form a cyst-like opening, which suggests the possibility of an artefact. As this space, however, contains quite a quantity of blood, it was probably formed before the enucleation by a hemorrhage. It may have been aided in its formation by the contraction of a small amount of newly formed connective tissue, which agglutinates the posterior iris surface to the wrinkled anterior lens capsule (Fig. 2).

The anterior surface of the iris, as well as the posterior surface of the cornea, is covered with a small amount of exudation in which some leukocytes, lymphocytes and plasma cells are suspended.

Evidently the injuring foreign body had ruptured the posterior lens capsule. In consequence the capsule is folded and wrinkled and the lens tissue, especially its posterior part, not only is undergoing cataractous degeneration, but also is pervaded by innumerable leukocytes and lymphocytes and has been partly dissolved. In spite of such great changes the capsular epithelium appears almost unaltered.

The ciliary body, in its anterior portion, is changed into a mass of lymphocytes, between which no muscular or connective tissue can be found. Here and there are nests of epithelioid cells and numerous giant cells. The muscular fibers become visible backwards near the pars plana only and are here widely separated by a blood-stained serofibrinous exudate which reaches back between chorioid and sclerotic to the optic papilla, spreading the endothelial layers of the suprachorioid in places widely apart. The cells of the pigmented retinal layer of the ciliary body are dragged inward by the cyclitic membrane as we see often. The cells of the unpigmented retinal layer are not only here and there separated from the pigmented ones by intervening infiltration but in places are lifted off *in toto* so that cysts of considerable size are formed between the two layers which contain remains of former hemorrhage and some lymphocytes, some are even

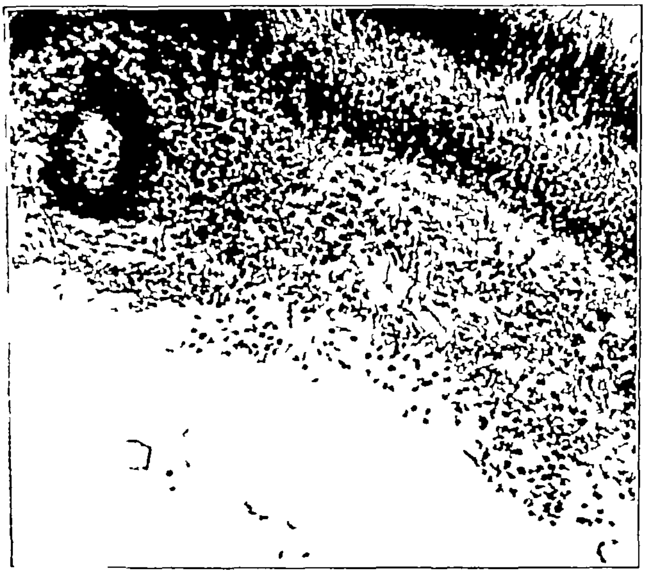

Fig. 9.—Lymphocytic infiltration of retina especially around a blood vessel. Limitans interna detached in small folds by lymphocytes and small hemorrhages.

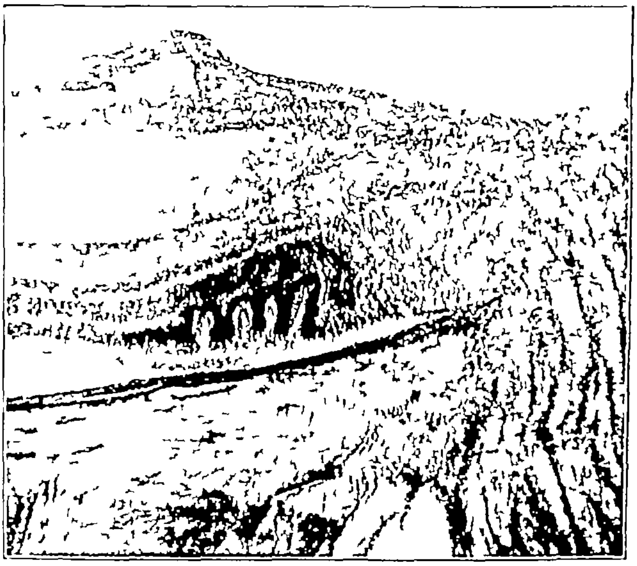

Fig. 10.—Optic nerve and papilla. Lymphocytic infiltration and edema. Newly formed connective tissue covers papilla and retina and is lifted up on left by hemorrhage.

still filled with blood The cyclitic membrane, which completely shuts off the anterior third, is still very rich in cells and blood vessels (Fig 3)

In the posterior part of the ciliary body and the anterior part of the chorioid, epithelioid cells are frequent, and they form the now well known, less stained islets between the deeper stained lymphocytes In numerous places they have broken through the lamina vitrea and grown through the retinal layers into the new formed cyclitic tissue (Fig 4) There are also, numerous little nodules of epithelioid cells here and there lying on the lamina vitrea, lifting up the partly disintegrated pigment epithelium cells from which they are probably derived (Dalén, Fuchs—Fig 5)

The tissue of the cyclitic membrane has pulled the periphery of the retina forward to a different degree in different sections, yet more so near the original wound than elsewhere The folded retina in these parts is attached to the pars plana of the ciliary body by intervening newly formed tissue. There are here and there hemorrhages, separating these folds from each other or from the tissue outside of them On the inner side the folds are covered with a few layers of newly formed connective tissue in such a manner that their surface is rendered smooth (Fig 6)

The anterior part of the chorioid shows, next to the iris and ciliary body, the most intense infiltration with lymphocytes This infiltration in places is thickest around the large blood vessels, but frequently the whole thickness of the chorioid is densely packed with lymphocytes The visible blood vessels are gorged with blood An irruption of lymphocytes into the blood vessels, such as Fuchs has described, I have not been able to find (Fig 7)

Toward the equator the lymphocytic infiltration of the chorioid diminishes gradually and then ends rather abruptly The posterior parts of the chorioid show hardly any infiltration, but are hyperemic and contain a serofibrinous exudate

The blood vessels and nerves which penetrate the sclerotic back of the equator and at the posterior pole are accompanied by very few lymphocytes and not surrounded by a thick infiltration, such as Fuchs described Neither have the lymphocytes broken through the sclerotic in any place

Contrary also to Fuchs observation in the eye here described, the retina is highly affected, almost throughout In the least affected portions there is only a lymphocytic infiltration around the blood vessels (Fig 8) In others the lymphocytes pervade especially the nerve fiber and inner molecular layer In the more peripheral parts the nerve-fibers have almost altogether disappeared and their layer is represented mainly by the supporting fibers of Mueller, between which numerous lymphocytes are lying The ganglion cells are undergoing degeneration or have disappeared altogether In numerous sections, especially of the posterior parts of the retina sometimes the inner, sometimes the outer molecular layer is wanting and there are evidences of former edema The rods and cones however, are as a whole strangely well preserved only, where an exudation or hemorrhage has pressed against them, they are degenerated to a varying degree

Almost the whole inner surface of the retina is covered with a thin, newly formed membrane In many places by shrinking, hemorrhages or infiltration this newly formed membrane is detached from the retina together with the inner limiting membrane (Fig 9) In some places, and especially where a large area has become thus detached, this seems to have been due to a hemorrhage, as blood cells and lymphocytes are found in the now apparently empty vesicle like spaces The largest one of these vesicles starts from the edematous temporal edge of the papilla and reaches uninterruptedly to beyond the macular region (Figs 10 and 14) The continuation of the newly formed membrane on the nasal side of the papilla is but slightly separated from the retina The large vesicle lying over the macula still contains a considerable amount of blood, although during the staining process most of it has fallen out (Fig 11) The macular region itself is strangely free from pathologic conditions, but somewhat to the temporal side of it a number of hemorrhages of an elongated shape lie between the nuclear layers arranged in the manner in which we usually find the fibrinous exudation in albuminuric retinitis (Figs 12 and 13)

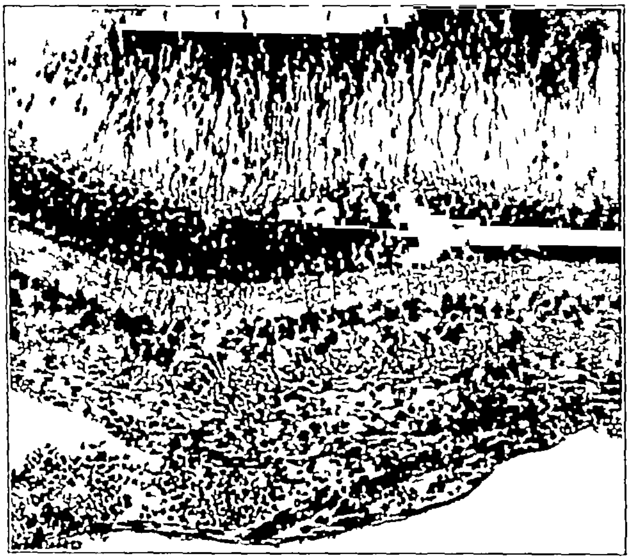

Fig 12 —Retina at temporal side of large vesicle where limitans interna and newly formed connective tissue join the retina Lymphocytic infiltration Blood in angle between retina and vesicle wall (left side) External molecular layer almost gone In upper right hand corner a hemorrhage between the nuclear layers

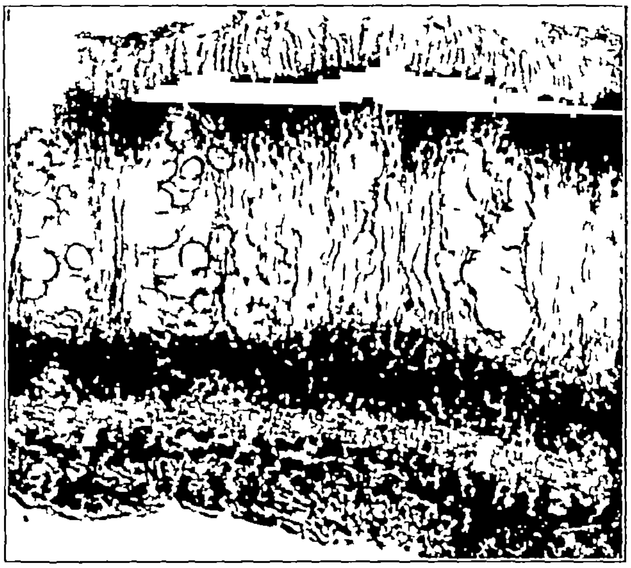

Fig. 13 —Retina from temporal side of large vesicle. Some lymphocytic infiltration Numerous hemorrhages between the nuclear layers.

The optic papilla is edematous and swollen especially on its temporal side It is pushed far enough into the interior of the eye to cause the neighboring retina to be thrown into numerous folds Its central blood vessels are in parts surrounded by large quantities of lymphocytes as far back as the nerve reaches Similar foci of lymphocytic infiltration are found here and there in the arachnoid and pia mater sheath (Figs 14 and 15)

The inner surface of the papilla is covered with the newly formed membrane which also covers the inner surface of the retina and forms the vesicle [illegible] described above There are numerous bl[illegible] ith [illegible] newly f[illegible] tissue At the tempor[illegible] lub[illegible] process containing blood [illegible] of the eye, and in some sections a number of very thin membranous excrescences accompany it This condition is apt to remind one of a persistent hyaloid artery Yet, it is impossible to find any connection between this appendix and the central retinal blood vessels in the papilla It probably owes its origin to former hemorrhages and is similar in nature to what Manz termed proliferating retinitis

No microbes could be found in the tissues of the eye

From this description it is seen that the pathologic conditions in this eye, which undoubtedly caused a sympathetic inflammation of the fellow eye while showing much which Fuchs considers as essentially characteristic of the sympathizing inflammation, differ in other points very materially from his description While he states that the retina and optic nerve are usually but slightly affected, in this eye—aside from the considerable inflammation in the anterior parts near the wound which affects all the tissues—the severest inflammatory signs, either still actively present or shown by their results, are found in the retina, and especially in the posterior parts, where the chorioid is but little affected, quite contrary to the usual experience

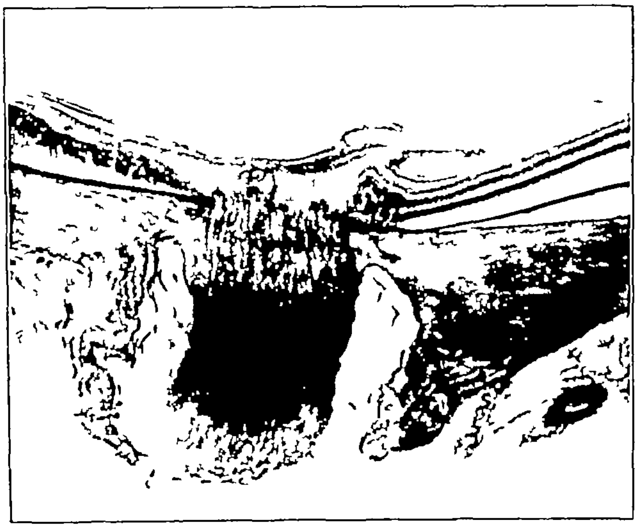

Fig 14 —Optic nerve and papilla Infiltration and edema Newly formed connective tissue covers retina and papilla and is detached, together with the limitans interna on the right by hemorrhage forming the large vesicle reaching beyond the macular region From this newly formed tissue a teatlike process has grown into the vitreous chamber

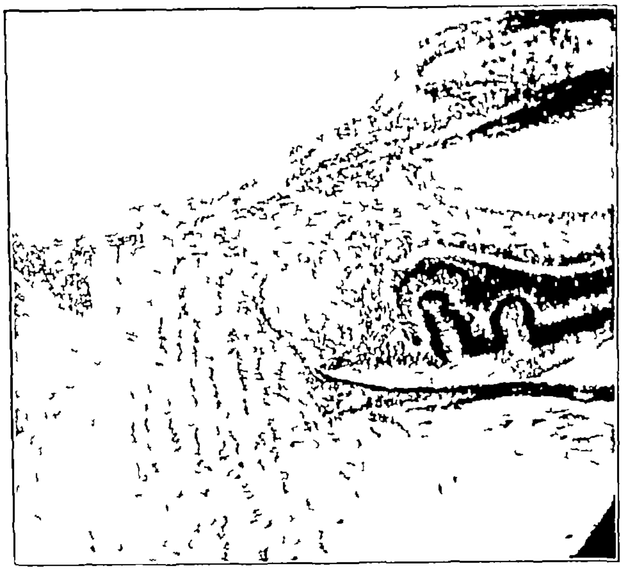

Fig 15 —Optic nerve head Edema by lymphocytic infiltration especially around the central blood vessels. Retina thrown into folds by edema Newly formed connective tissue covering the papilla

The character of the sympathizing inflammation in this case seems to have been preeminently a hemorrhagic and proliferating one From this it seems that Fuchs laid out the limits of the range of what may be called a sympathizing inflammation somewhat too narrowly

310 Metropolitan Bldg

SCLEROSIS OF THE LIGAMENTUM PECTINATUM AND ITS RELATION TO GLAUCOMA *

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BOSTON

In the pathologic examination of glaucomatous eyes I have several times noted a condition that seemed of considerable significance in regard to the pathogenesis of glaucoma, namely, sclerosis of the ligamentum pectinatum with an open filtration angle The condition, I find, has been previously described by a few other observers, all of whom have evidently regarded it as the cause of the advanced glaucoma with which it was associated Brief mention is made of it by Schmidt-Rimpler,[1] and single cases have been recorded by Tartuferi,[2] Sarti[3] and De Vries [4] The latter explained the sclerosis as due to toxins carried in the aqueous humor, an explanation which suggests that we have here a form of glaucoma dependent on the same cause as arteriosclerosis

Thomas Henderson,[5] in his theory of glaucoma, which as I understand it, is a variation of the old retention theory, postulates a sclerosis of the ligamentum pectinatum He maintains that with age the trabeculæ of the ligament become thicker so that finally in some cases glaucoma ensues, owing to the cutting off of the access of aqueous humor to the canal of Schlemm and the consequent rise of intra ocular venous pressure At the same time, as a result of congestive edema, the iris swells, causing its root to become adherent to the ligamentum pectinatum The actual existence of this advanced sclerosis, however, he has not demonstrated, no doubt because at the stage when glaucomatous eyes are usually obtained for histologic examination, adhesion of the iris root had been of such long standing that it was impossible to determine whether the sclerosis of the ligament was the cause or the result of the adhesion It is true that in the few recorded cases in which glaucomatous eyes were examined at very early stages sclerosis of the ligament was not noted, but it is possible that they were not examined with special reference to this point

It is obvious therefore, that if it could be shown that cases of glaucoma occur in which there is primary sclerosis of the ligamentum pectinatum with the filtration angle partly or wholly open, Henderson's theory would receive strong support, since it would not be

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* From the Massachusetts Charitable Eye and Ear Infirmary

[1] Schmidt Rimpler Graefe Saemisch Handbuch der Gesamten Augenheilkunde 1908 ii 104

[2] Tartuferi Cited by Sarti note 3

[3] Sarti Bull d Soc med chir di Bologna 1882 lxiv 147 Centralbl f Augenheilk 1895 p 488

[4] De Vries Nederl Tijdschr v Geneesk 1907, ii 203 Nagel's Jahresbericht 1908 p 680

[5] Henderson Glaucoma London 1910

expected that the assumed edema of the iris would always be sufficient to cause peripheral synechia Even if Henderson's theory was not accepted in its entirety — and his argument does not seem altogether convincing — sclerosis of the ligament would no doubt be accepted as an essential cause of glaucoma The evidence, however, that I have to bring forward, seems to point in an opposite direction, so that sclerosis of the ligamentum pectinatum as a cause of glaucoma yet remains to be demonstrated

Following are brief summaries of the findings in ten cases in which there was sclerosis of the ligamentum pectinatum with an open filtration angle

CASE 1 (2 1780) —*Clinical History*—The patient, a man aged 38, was struck in the left eye while boxing twenty years ago Cataract resulted, which was removed by discissions thirteen years ago Nine years ago he was again struck in the left eye with a fist After this the patient could see but little, *and the eye was painful at times Eighteen months ago* paracentesis for acute glaucomatous attack was performed *The right eye was normal The left eye was enucleated* Dec 18 1909

Pathologic Condition.—There were advanced secondary glaucoma following discission of the lens, with prolapse of the vitreous into the corneal incision equatorial staphyloma, deep cupping of the optic disk and advanced atrophy of the retina, iris and ciliary body The pupil was free, the filtration angle was everywhere open The ligamentum pectinatum was covered with fibrous membrane continuous with the anterior boundary layer of the iris The spaces of Fontana and the canal of Schlemm were obliterated

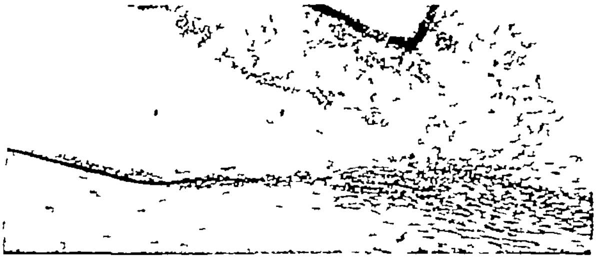

Fig 1 —Case 7 Primary glaucoma Hyaline fibrous tissue extending over surface of ligamentum pectinatum and membrane of Descemet. The underlying trabeculæ are still well seen

CASE 2 (2 891) —*Clinical History*—The patient, a man aged 32, had an old injury of the left eye with traumatic cataract Ten years ago the cataract was extracted, after which there was *much pain* The *tension* was + 3 The *right eye* was normal The left eye was enucleated May 25, 1904

Pathologic Condition—There were advanced secondary glaucoma old perforation of the cornea traumatic cataract, ciliary staphyloma, deep cupping of the optic disk advanced atrophy of the retina and atrophy of the ciliary body, marked at the site of the staphyloma but slight elsewhere The pupil was free, the iris was almost normal except at the pupillary margin, where there was beginning ectropion The filtration angle was everywhere open The ligamentum pectinatum was covered with a smooth layer of hyaline tissue, which was lined by flattened pigmented cells The trabeculæ were visible but the spaces of Fontana and the canal of Schlemm were obliterated (Fig 3)

CASE 3 (2 2097) —*Clinical History*—The patient a man aged 73 twenty seven years ago was struck in the right eye with a chip from a hammer The eye soon afterward became blind and has since been very irritable at times The tension was + 1 The left eye was normal The right eye was enucleated Nov 10 1911

Pathologic Condition—There were advanced secondary glaucoma, an old perforating wound of the cornea and lens a small foreign body encysted on the posterior part of the ciliary body, slight siderosis bulbi, localized chorioretinitis in the lower outer quadrant (due to movement of foreign body before it became encysted?), deep cupping of the optic disk and moderate atrophy of the retina The pupil was free, partly excluded The iris and ciliary body were almost free from atrophy, but showed slight recent iridocyclitis. The filtration angle was everywhere open The ligamentum pectinatum was in places almost free from sclerosis In these places the stroma cells of the ligament were greatly pigmented (pigment *bleaches, hence not iron pigment) and the spaces of Fontana* contained chronic inflammatory cells Elsewhere, and to some extent also here the ligament was covered with a thin hyaline layer lined by pigmented cells continuous around the angle with the anterior boundary layer of the iris The underlying trabeculæ and spaces of Fontana were almost normal

CASE 4 (2 557) —*Clinical History*—The patient, a man aged 48, was struck in the right eye with a piece of steel twenty two years ago, the left eye was normal. The right eye was enucleated May 1, 1901

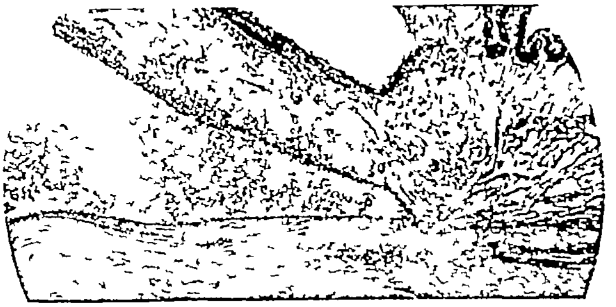

Fig 2 —Case 7 Primary glaucoma Dense hyaline fibrous tissue on surface of ligamentum pectinatum The underlying trabeculæ are greatly compressed so that the new tissue might readily be mistaken for the ligament itself

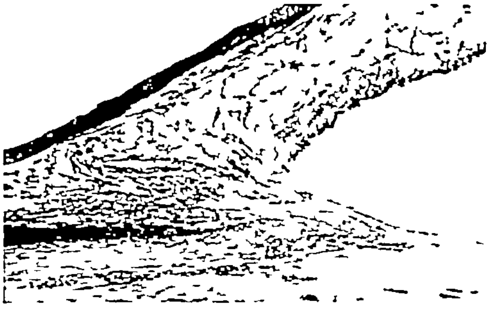

Fig 3—Case 2 Secondary glaucoma Ligamentum pectinatum covered with a smooth layer of hyaline tissue lined by flattened pigmented cells The almost complete absence of iris atrophy indicates that the separation of the peripheral synechia occurred early The atrophy of the ciliary body here is due to a ciliary staphyloma

Pathologic Condition—There were advanced secondary glaucoma traumatic cataract equatorial staphyloma, foreign body in the vitreous chamber, slight siderosis bulbi, deep cupping of the optic disk and advanced atrophy of the retina iris and ciliary body The pupil was free The filtration angle was mostly open being closed only along a small part of the circumference The ligamentum pectinatum was covered with a thin dense hyaline layer presenting a smooth surface lined by endothelium The spaces of Fontana and the canal of Schlemm were obliterated

CASE 5 (2 2057) —*Clinical History*—The patient a man aged 53, received a perforating wound of the corneal limbus of the left eye thirty four years ago The foreign body was retained in the globe Four years ago the patient was told that he had a cataract in the left eye The eye was painful and moderately injected the cornea was clear the pupil free the lens cataractous and vision was *nil* [illegible] right eye was normal The left eye [illegible]leated O

Pathologic Condition—There were secondary glaucoma, an old perforating wound of the cornea limbus, remains of the foreign body encysted in the sclera near the optic disk, slight siderosis bulbi, moderate cupping of the optic disk and moderate atrophy of the retina The filtration angle was open on one side and closed on the other On the closed side the ciliary body and the root of the iris were greatly atrophied Elsewhere the ciliary body was almost free from atrophy The ligamentum pectinatum in places was covered with a delicate hyaline membrane The spaces of Fontana were not obliterated The iris was practically normal except at the point where the root adhered and at the pupillary margin (probably due to the fact that the peripheral synechia became separated on one side before there was atrophy of the iris root, so that the circulation of the iris was not seriously interfered with even on the adherent side)

Case 6 (2 998) —*Clinical History*—The patient was a man aged 41 Eleven years ago the left eye was inflamed and painful (iritis?) The present attack of pain and redness began five days ago Vision was *nil* *There were posterior synechiæ and hyphemia The tension was* + 1 *Right eye, vision* 20/50 The left eye was enucleated Aug 1, 1904

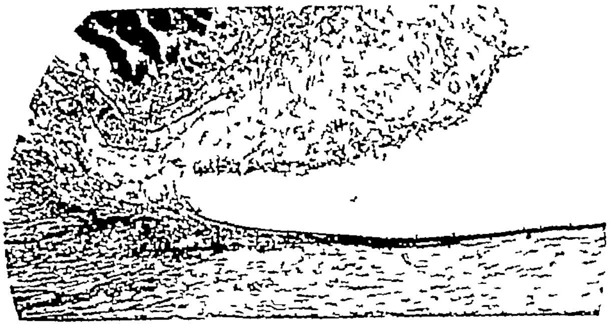

Fig 4—Case 9 Primary glaucoma Ligamentum pectinatum covered with a new formed elastic membrane continuous with the membrane of Descemet. Elastic tissue stain

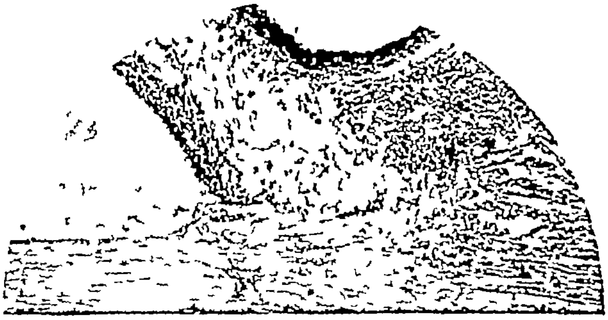

Fig 5—Case 7 Primary glaucoma. Iris in act of pulling away from ligamentum pectinatum

Pathologic Condition—Advanced secondary glaucoma was present and old iritis with exclusio pupillæ, no cyclitis, old or recent. There were deep cupping of the optic disk, advanced atrophy and complete separation of the retina (subretinal coagulum), recent hemorrhagic retinitis and obstruction of both central retinal vessels from endovasculitis The iris was highly atrophied, the ciliary body only slightly so The filtration angle was closed on one side only The ligamentum pectinatum was not greatly altered, even where the iris was adherent, the trabeculæ and spaces of Fontana everywhere being well seen On the open side, along the surface, the spaces of Fontana were closed off by proliferation of the stroma cells On one side, at the site of the adhesion, there was evidently a state of tension, broken strands of iris tissue bridging the angle The strongest adhesion here was that between the anterior part of the ligament and the iris It is evident that ultimately the picture seen in Case 8 (Fig 7) would have resulted The internal spaces of Fontana were dilated, due, probably, to traction on the trabeculæ The dilated spaces of Fontana and the irregular spaces formed by the breaking adhesion were frequently found filled with blood, which was continuous with an interstitial hemorrhage in the root of the iris The canal of Schlemm was almost obliterated

Case 7 (2 1616) —*Clinical History*—Patient was a woman aged 61 About six years ago a cataract began in the left eye For several years past the eye had been painful and for the past eighteen months it had been absolutely blind The tension was + 1 The right eye was normal (?) The left eye was enucleated Jan 23 1909

Pathologic Condition—There were advanced primary glaucoma, deep cupping and cavernous atrophy of the optic nerve, advanced atrophy of the retina, moderate atrophy of the iris and almost no atrophy of the ciliary body and active recent iritis with posterior synechiæ and pupillary membrane The filtration angle was open almost everywhere The ligamentum pectinatum showed three grades of sclerosis a, vascularized connective tissue over its surface without complete obliteration of underlying spaces of Fontana, b, thick layer of dense fibrous tissue on its surface, with almost complete obliteration *of the spaces of Fontana* (Fig 2) and c, condition intermediate between a and b (Fig 1) Where the angle was closed the adhesion was evidently old, but was in the act of pulling away from the ligament Here the spaces of Fontana have disappeared, and irregular strands of iris tissue clearly under tension, some of them containing capillaries stretched between the surface of the ligament and the iris (Fig 5)

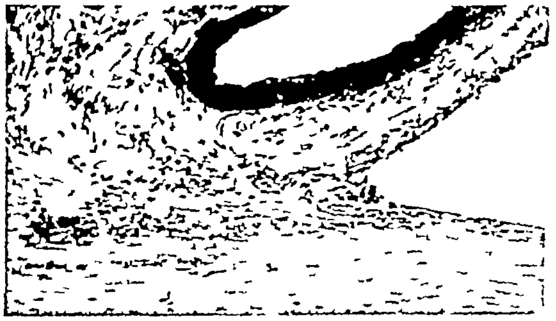

Fig 6—Case 10 Hemorrhagic glaucoma Iris in act of pulling away from ligamentum pectinatum

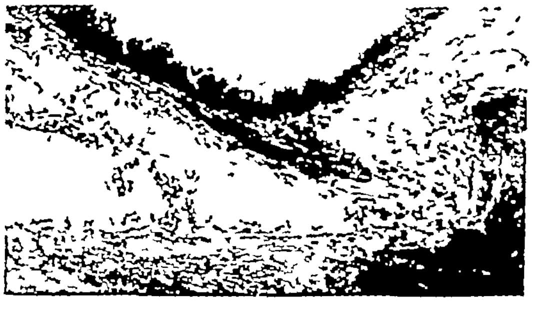

Fig 7—Case 8 Primary glaucoma Iris root pulling away from ligamentum pectinatum and held only by a strand of iris tissue containing a blood vessel

Case 8 (2 1000) —*Clinical History*—The patient, a man aged 67, has had no vision in the left eye for fifteen years Three years ago he began to have attacks of redness and pain Six weeks ago he began to have pain in the right eye and to see colored rings around lights Vision of the right eye was 20/30, field considerably contracted The left eye was enucleated April 16, 1910

Pathologic Condition—There were advanced primary glaucoma, deep cupping of the optic disk and advanced atrophy of the retina and iris The ciliary body was moderately atrophic The pupil was free The filtration angle was everywhere free, except as noted below The ligamentum pectinatum in places was covered with a layer of vascularized hyaline tissue, sometimes containing elastic tissue and presenting a smooth surface *lined by endothelium. In other places the spaces of Fontana* were partly opened and the surface of the ligament was ragged, showing portions of iris tissue adherent to it Here, the opposite surface of the iris was also ragged In one place the angle was bridged by a strand of iris tissue containing a blood vessel (Fig 7) The spaces of Fontana were for the most part obliterated, and the trabeculæ were not easily recognized.

Case 9 (2 1792)—*Clinical History*—The patient, a man aged 66, twenty eight years ago was struck in the left eye with a stone, but the eye gave no trouble until two years ago when it became inflamed and painful, it had been subject to recurring attacks since them The cornea showed an old central scar with calcareous deposits—atheromatous ulcer After the calcareous deposits were scraped out the patient neglected treatment and ulcus serpens ensued The right eye was not glaucomatous, vision was 20/30 The left eye was enucleated Nov 28 1909

Pathologic Condition—There were advanced primary glaucoma, deep cupping of the optic disk, advanced atrophy of the retina, moderate atrophy of the iris and ciliary body, active ulcus serpens without perforation and purulent iritis The filtration angle was for the most part open, in places partly closed The ligamentum pectinatum was covered with a new formed elastic membrane continuous with the membrane of Descemet (Fig 4) The spaces of Fontana were not obliterated and the trabeculæ were well seen Where the angle was *partly open, the adhesion covered about two thirds of the ligament* Here it was sometimes seen that the adhesion was in the act of separating at the apex of the angle, leaving only the anterior part adherent

Case 10 (2 1935)—*Clinical History*—The patient, a man aged 57, had hemorrhages into the vitreous of the right eye five years ago Three years ago the vitreous was clearer, vision equaled hand movements One year ago he had an acute attack of glaucoma, which lasted about one month There was recurrence of tension and pain The left eye showed sclerosis of the retinal vessels, no glaucoma and normal vision The right eye was enucleated Dec 10, 1910

Pathologic Condition—There was advanced hemorrhagic glaucoma The retina was atrophic and covered with hemorrhages There was deep cupping of the optic disk. Complete obstruction of the central retinal vein The filtration angle was open around one half of its circumference On the adherent side, the iris and ciliary body were highly atrophic and there was ectropion uveæ, on the open side there was distinctly less atrophy and no ectropion The ligamentum pectinatum on the open side was covered wholly or in part with a layer of vascularized connective tissue, having a smooth surface and continuous around the angle with the iris At the place of transition between the closed and open angle, the adhesion was in the act of pulling away from the ligament, the tissue intervening between the iris and ligament evidently being under tension (Fig 6) In places the apex of the angle was freed leaving the anterior portion of the ligament adherent, but in other places the anterior portion was being freed first

In each of the above ten cases the glaucoma was in an advanced stage, with deep cupping of the optic disk and marked atrophy of the retina Three cases were of primary, one of hemorrhagic and six of secondary glaucoma Of the latter, one was due to old iritis of unknown etiology, with exclusion of the pupil, one followed discissions of a traumatic cataract, and four followed perforating wounds of the globe in three of which there were retained foreign bodies and siderosis bulbi In only the first three cases was the filtration angle open all around In the others there were peripheral synechiæ of greater or less extent which might well have been overlooked if the eyes had been sectioned without this point in view

These cases seem to me to offer convincing evidence that the sclerosis of the ligamentum pectinatum that has thus far actually been observed in glaucoma is not the cause of the latter, but the result of preceding peripheral anterior synechiæ The most important evidence, perhaps, is furnished by the last five cases in which the iris is found in the act of pulling away from the ligament (Figs 5, 6 and 7), thus showing plainly that peripheral synechiæ had once been complete This is strongly supported by the fact that the changes in the ligament in all the cases involved chiefly its surface Moreover, the fact that the condition in question occurred in secondary, as well as in primary glaucoma, is almost alone sufficient to prove that the sclerosis was not the cause of the increased intra-ocular pressure In three of the cases, it is true, there was slight siderosis, so *that it is conceivable that here the sclerosis was due to* iron pigment deposited in the ligament which later disappeared, but this explanation is improbable from the fact that it does not apply to the other seven cases in which the changes in the ligament were similar

The question as to the cause of the preceding peripheral synechiæ has no direct bearing necessarily on the question as to the cause of sclerosis of the ligament, and need not be discussed here In the case of primary glaucoma, it no doubt involves the fundamental question relating to the cause of the increased intra ocular pressure, which thus far has never been satisfactorily answered In the case of secondary glaucoma Fuchs[6] has shown that peripheral synechia frequently is due to an inflammatory condition of the iris and ligament which leads to their contact

In all of the above cases the changes in the ligament were essentially similar, differing chiefly in degree only, and consisted in the occurrence of new tissue on its surface with more or less obliteration of the spaces of Fontana The new tissue consisted of vascularized connective tissue, hyaline or elastic tissue, or in one case partly of tissue closely similar to the iris stroma These changes were perhaps produced in this way During the persistence of the adhesion of the iris root to the ligament, the openings of the spaces of Fontana into the anterior chamber became permanently obliterated by cell proliferation If the iris then pulled away early, a comparatively smooth surface remained if late more or less tissue from the iris was left Over this surface the corneal endothelium grew, and beneath it was gradually formed a hyaline layer, or even an elastic membrane (Fig 4), identical with and continuous with the membrane of Descemet The obliteration of the spaces of Fontana deeper down was probably due chiefly to compression[7]

Granting that sclerosis of the ligamentum pectinatum in the above cases was due to peripheral anterior synechiæ which became separated how was this separation brought about? In three of the traumatic cases the iris was almost free from atrophy so that no doubt the separation occurred early, as was indicated also by the fact that the changes in the ligament were comparatively slight Here evidently the traction exerted by the sphincter pupillæ was alone sufficient to accomplish the separation Fuchs[6] suggests that peripheral synechiæ associated with traumatic iritis may be freed in this way, without, however, discussing the possible effect on the ligament thereby resulting In the cases in which there was marked atrophy of the iris, it is evident that the freeing of the adhesion must have taken place relatively late, and that it could not have been due to traction of the sphincter alone The explanation of these cases, no doubt, lies in the cicatricial contraction of the atrophied iris This contraction, being resisted all around by the ciliary body, must have produced a state of tension in the iris which caused traction on the peripheral synechiæ in a direction practically at right angle to the plane of the iris The pull was therefore not toward the pupil, as at first might be supposed, but backward or even slightly toward the periphery The reason that such separations of peripheral synechiæ do not occur more often is no doubt due to the fact that the adhesion is apt to be especially firm in just those cases in which the cicatrization of the iris is greatest

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[6] Fuchs Arch f Ophth (Graefe's) 1909 lxix [illegible]

[7] It may be well to emphasize here the fact that this paper is concerned only with the type of sclerosis of the ligament [illegible] in the literature and illustrated by the above cases I have [illegible] of an eye (2 1612) in which there is an entirely different [illegible] sclerosis. Here the internal portion of the ligament is relatively normal while in places there is marked cell proliferation [illegible] ately about Schlemm's canal In this case there is no [illegible] disk and the filtration angle is [illegible] hand, there is albuminuric [illegible] intra-ocular [illegible] Schlemm's canal is no doubt [illegible] sclerosis

233 Charles Street

ABSTRACT OF DISCUSSION

Dr M Feingold, New Orleans What constitute the essential features of glaucoma? Is it the increased tension alone that constitutes glaucoma? Or are other symptoms of glaucoma correlated and equally essentials of the disease such as the affection of the optic nerve? Most authors agree that glaucoma is essentially and solely increased tension and that all symptoms found in glaucoma are either symptoms leading to glaucoma or symptoms that are the consequence of increased *tension* In the *former* group would belong such symptoms as shallow anterior chamber, small cornea, cyclitis, occlusion and seclusion of the pupil, adherent leukoma etc To the latter group would belong the defective epithelium and edema as well as the loss of sensitiveness of the cornea atrophy of the iris, oval pupil, and above all the glaucomatous excavation If it be true that glaucoma be purely and simply nothing else but increased tension we must ask, how is increased tension brought about?

Problems seen in daily practice convince one that no one of the theories of glaucoma can satisfactorily account for all cases of glaucoma, and that for the present we are compelled to call in several of the theories to explain a single case of glaucoma Sclerosis of the pectinate ligament, as proclaimed by Henderson to be the sole cause for glaucoma, may possibly in the future be demonstrated as the primary factor in causing glaucoma Dr Verhoeff's pictures prove that, at least in his case, the sclerosis of the ligament existed with peripheral anterior synechia, these anterior synechiae having been separated during the course of the disease Such pictures are rare because in most instances the iris is so much in contact with the cornea that the coexistent sclerosis of the ligament cannot alone be blamed for the glaucoma Ranvier remarked years ago that the pectinate ligament becomes sclerotic with age but no undoubted case of pure sclerosis of this ligament has been found as yet as the sole cause for glaucoma Still such possibilities may be admitted Could not syphilis, that plays so important a part in the morbidity of the colored race could not syphilis with its consequent vascular changes, be held responsible for the simple glaucoma that we see in the colored race almost to the exclusion of any other form of primary glaucoma?

Dr Walter Baer Weidler, New York Will Dr Verhoeff explain just what he means by a sclerosis of the ligamentum pectinatum, whether there was any infiltration present or not whether there are any cases of hypopyon or whether there was any pus present in any of the specimens shown? I thought I saw deposits in the anterior chamber

Dr F H Verhoeff, Boston By sclerosis of the ligament I mean, in a general way thickening of the framework of the ligament In these cases there was also new formation of connective tissue on the surface The leukocytes in the filtration angle shown in some of the illustrations were due in one case to an active ulcus serpens, and in another to recent iritis These, of course, were of too recent occurrence to have had anything to do with the sclerosis of the ligament

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THE KRONLEIN OPERATION AS AN EXPLORATORY PROCEDURE IN AFFECTIONS OF THE ORBIT

ARNOLD KNAPP, M D
NEW YORK

The purpose of this paper is to draw attention to the facility of the osteoplastic resection of the temporal orbital wall, commonly called the Kronlein operation, as an operative procedure, and its adaptability as a diagnostic step to obtain exact information of conditions present in the depth of the orbit such as morbid processes in the orbital walls, in the optic nerve and in the soft parts

I take it for granted that this operation is accepted to be the best method of removing circumscribed tumors in the depth of the orbit with the preservation of the eyeball and, in many instances, with the preservation of sight and unimpeded ocular motility

The operation, futhermore, permits the best determination of the extent of many orbital tumors, often their operability, and the securing of a proper specimen for microscopic examination as a preliminary to an orbital exenteration if found necessary, or, in the case of rapid malignity, the abandonment of further operations The question of the advisability of the Krönlein operation in inflammatory conditions of the orbit seems to me to be still open, for it is now known that most inflammatory conditions in the orbit are secondary to disease of the nasal accessory sinuses, in which case operation at the internal orbital wall is the best

The method of performing the Kronlein operation is sufficiently well known not to require a detailed description, yet the following points are of practical importance in my experience The cutaneous incision should be slightly to the outer side of the periosteal incision and of the bony wound, so that the line of cutaneous cicatrix shall not be directly over and adherent to the bony margin of the orbit The incision of the periosteum along the bony margin should be carefully made with the point of the knife directed against the bone, so that a perforation of the orbital periosteum with premature prolapse of the orbital contents can be avoided The separation of the orbital periosteum can best be done with a sharp flat periosteal elevator The bone-flap is formed by a medium-sized osteotome and hammer from the orbital surface, and forcibly displaced outward

This displacement is aided by two incisions of the deep muscular tissues and periosteum, each radiating from the anterior extremities of the bony wedge If the bone in the deeper part of the wedge has been fractured, more bone can be removed with the rongeur forceps in order to give the greatest possible access to the orbit. The bone externally at the orbital margin and malar process must not be removed, as the wedging of the bony flap in this position is necessary to keep it in place and prevent deformity when the bone flap is replaced at the end of the operation

The horizontal incision of the orbital periosteum is held apart with small retractors and avoiding the external rectus muscle, the index or little finger of the operator is carefully introduced into the orbital cavity The optic nerve can then be easily identified and followed along its course to the eyeball, the orbital walls, upper, inner and lower and the apex of the orbit can be palpated If a small tumor be present, its connection and degree of adhesion to the surrounding tissues are noted The tumor may be isolated with the finger or a path should be carefully made to it principally by blunt dissection The path is held open by long, narrow, blunt retractors, and the tumor extracted The periosteal wound is closed with fine catgut sutures The bone flap is replaced and wedged firmly back into its old position The skin and subcutaneous parts are sutured, leaving a small opening for a cigarette drain of rubber tissue leading into the orbit if hemorrhage during the operation demands it It is advisable to suture the eyelids, as considerable chemosis is apt to follow which will prevent the closure of the eyelids

If the tumor in the orbit be not circumscribed and infiltrating, further steps depend on the extent of the infiltration and the possibility of a radical removal with preservation of the eyeball If the nature of the tumor is not known, a piece of the growth can be removed for examination to determine whether the orbital contents should be exenterated or further operations abandoned

During the past winter two cases illustrating the advantages of the Kronlein operation from this point of view were operated on by me and their operative features are briefly reported

CASE 1 —*Patient* —E R W, aged 31, referred to me by Dr F W Marlow of Syracuse, N Y, gave the history of an orbital tumor of one year's standing A mass in the orbit could be felt on the outer and lower side of the proptosed eyeball The Krönlein operation revealed a thickened periosteum directly continuous with a diffuse growth which seemed densest to the outer side and below the eyeball and extended to the apex of the orbit As there was no possibility of removing this growth in any way approaching a radical manner and preserving the eyeball, a specimen for microscopic examination was obtained This showed a tumor consisting of fibrous tissue with hypertrophy of endothelial like cells, which was not regarded by the pathologist as particularly malignant The entire orbital contents were therefore subsequently removed A report of the histology of this very interesting growth together with the clinical history will be published later

CASE 2 —*Patient* —L L, aged 17, was operated on about seven years ago for a plexiform neuroma of the eyelid At present there are the irregular cicatrices in the upper lid from the old operation, ptosis, the conjunctiva of the upper lid is very much thickened and there is pronounced exophthalmos An exploratory Krönlein operation was advised At the operation, after reflecting the osteocutaneous flap, the orbital periosteum was incised The introduced index finger detected a normal optic nerve, normal bony walls, but a distinct oval tumor at the apex of the orbit just beneath the optic nerve to which it seemed adherent This adhesion was carefully broken up and a path made down to the tumor, chiefly by blunt dissection, and the tumor extracted in its entirety It measured 19 by 13 mm and proved to be a neurofibroma The histology of this tumor with its complete clinical history will also be published separately The hemorrhage from the orbital wound was insignificant The wound was closed and a small drain introduced The course of healing was uneventful except for some orbital induration internal to the orbital margin and a small corneal ulcer At time of discharge the motility of the eye outward was much improved and the sight of the eye had not diminished

10 E Fifty Fourth Street

THE SURGICAL TREATMENT OF EXOPHTHALMOS

MARTIN B TINKER, S B, M D
ITHACA, N Y

In a somewhat large number of patients on whom I have operated for exophthalmic goiter during the past few years there have been many cases of extreme bulging of the eye The exophthalmos is usually much improved and in some cases entirely disappears after partial thyroidectomy As a rule, however I have found it the most obstinate of the classical symptoms of goiter The tachycardia and extreme nervousness which we see in so many of these cases usually clear up satisfactorily after operation, followed by prolonged rest, but once the exophthalmos has become extreme it is much less usual to see the eyes go back to normal

INDICATIONS FOR OPERATION

The deformity is very noticeable and many women will eagerly accept any means of relief, operative or non operative, which can be offered The disfigurement, however, is by no means the most important indication for operation in certain of these cases The inability to close the eyes, even during sleep, causing abnormal dryness of the cornea and increased exposure to dust and injury, not infrequently causes ulceration which endangers vision The management of the eye condition in such cases I have invariably turned over to the specialists In a large proportion of the cases, danger has been removed by the usual measures of treatment Rest in bed, fastening the lid down by bandaging, or with adhesive plaster, the use of eye-shields, atropin and other medicinal treatment has usually cleared up the immediate danger to the eye If, however, the eye does not recede, the same conditions which originally caused ulceration of the cornea bring back trouble as soon as the patient leaves the specialist, and in such cases operation is indicated to prevent this recurring danger In a few cases there has been extreme pain in the eye, in the supra-orbital and occipital regions, which has not yielded to any form of treatment which the best ophthalmologic skill could suggest and an occasional patient has sought relief from her exophthalmos chiefly because of the pain In a number of less extreme cases of protrusion from exophthalmic goiter, the old operation of tarsorraphy, familiar to all, is doubtless all that is required

The edge of the lid is freshened for a short distance at the outer canthus and two or three stitches inserted which narrow the palpebral slit sufficiently to give the exposed eyeball protection and the bulging is very much less noticeable This is such a simple procedure and so free from risk that it seems to deserve to be more commonly used than it is at present Before advising any procedure it is best to wait a few months after partial thyroidectomy, as in quite a number of cases the exophthalmos improves so that no operation for its correction is needed In the more obstinate cases with bad deformity, severe pain or considerable danger to the function of the eye from exposure, the more radical operation would seem indicated

In the treatment of pulsating exophthalmos, ligation of the common carotid seems the accepted treatment and it seems unnecessary to enter into any discussion of that subject

The osteoplastic resection of the outer wall of the orbit in the treatment of orbital tumors and the obstinate and extreme protrusions in exophthalmic goiter has perhaps not been as commonly practiced as it deserves to be

THE KRÖNLEIN-KOCHER OSTEOPLASTIC RESECTION OF THE OUTER WALL OF THE ORBIT

Krönlein deserves credit for having proposed a satisfactory method of exposing the posterior surface of the eyeball and Kocher has suggested some important improvements Through the kindness of Dr A T Kerr, professor of anatomy in Cornell University, I have been able to make use of anatomic material and through such study have somewhat modified the operation as described by Kocher Careful study of the anatomy of this region gives us further valuable suggestions regarding the operation First, as to placing the incision The original incision suggested has many disadvantages In the first place it leaves a larger visible scar on the face than is necessary, and, perhaps more important, it endangers certain filaments of the facial nerve, making partial facial paralysis extremely likely The usual location of the filaments of the facial nerve in this vicinity is shown in Figure 1 While there is a certain degree of variation in the distribution of these filaments, it is constant enough so that an incision can be placed in the region of the eyebrow where it is fairly well covered and the skin is elastic enough to allow it to be drawn considerably toward the field of operation The incision is carried, as shown in Figure 2, along the lower border of the eyebrow to external angular process of the frontal bone down onto the zygoma and for a short distance outward over the zygoma The tissues are divided to the bone, the periosteum with the overlying soft parts are separated from the bone for a considerable distance and from the outer wall of the orbit The external angular process of the frontal bone then may be conveniently divided by the use of a thin metacarpal saw Perhaps, better still, the bone may be drilled, a Gigli saw used, and the process divided from within outward, thus avoiding any possible danger of injuring the eyeball In drilling through the bone the eye can be protected by holding a spatula, wrapped with gauze, firmly against the bone so that the drill-point strikes it as soon as it has pierced the bone When the zygoma has been divided, it is an easy matter with sequestrum forceps to turn the entire outer wall of the orbit outward giving very free access to the structures in the posterior part of the orbit The periosteum which has been separated from the inside of the outer bony wall of the orbit is divided on the external rectus muscle and the orbital fat exposed giving an opportunity to examine for a new growth of any kind within the orbit In case a tumor is present within the region of the posterior surface of the eyeball and optic nerve, there is abundant room for careful dissection If the operation has been thus far performed by a general surgeon, at this stage, it seems to me, the removal of the growth might well be taken up by the eye specialist who is accustomed to delicate manipulation In any case, I believe that a competent specialist should always be present at such an operation, to advise, suggest and assist In case no new growth is found to account for the bulging, a considerable portion of the outer wall of the orbit can be chipped away with rongeur forceps, giving a good deal of room for structures in the orbit to sink back, thus correcting the exophthalmos I have closed the periosteum of the inside of the orbit with fine catgut, also partly approximated the soft parts in the remainder of the wound with catgut after the bony flap was replaced With the soft parts attached over such a large surface, it seems unnecessary to use any means of fastening the bone after it is replaced It usually comes readily into position and the skin-stitches of fine horsehair also help to hold it The after care of the case should be largely in the hands of the specialist

I first used this operation with a patient on whom I had performed partial thyroidectomy, two years previously, for exophthalmic goiter During the operation I received most valuable suggestions and assistance from

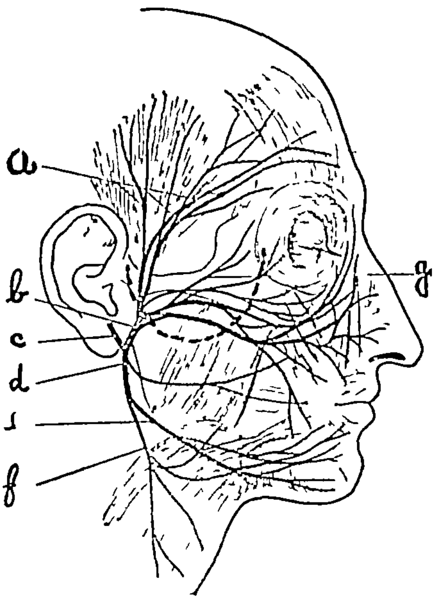

Fig 1 —Distribution of facial nerves as shown by Corning (*Lehrb d. Topographischen Anatomie* after Frohse) a temporal branch of temporomalar b temporofacial branch c facial nerve d cervicofacial branch e mandibular branch f cervical branch g malar branch of the temporofacial - Dotted line indicates Krönlein's incision as given by Bockenheimer (*Arch f Klin Chir* 1904 lxxii) who emphasizes its danger to the facial nerve Kocher (*Operationslehre* fifth Ed p, 322)-also urges the danger of the Krönlein incision and quotes Domela and Heilbron who collected statistics of 120 cases with injury to the facial nerve in a very large proportion

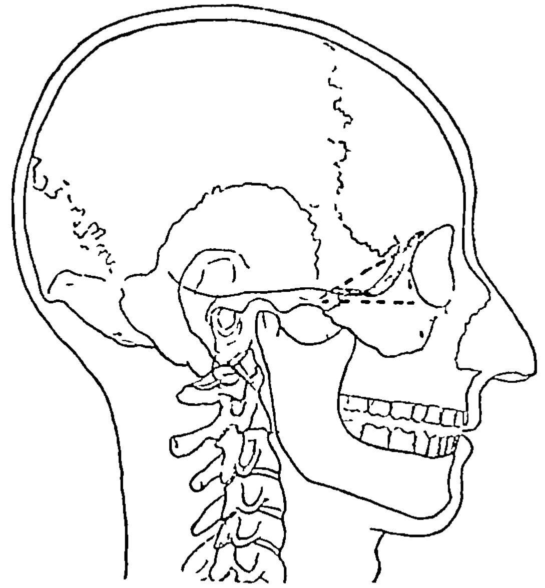

Fig. 2 —Triangle of safety for facial nerve and modified Kocher incision plotted on outline record chart in use at Anatomic Laboratory Cornell University Medical College Ithaca Twenty-five student dissections plotted on this chart and verified by Dr Abram T Kerr professor of anatomy were examined No facial filaments in triangle twelve cases minor filaments just above horizontal leg eleven cases cut by both legs two cases no important branches to muscles about orbit divided

Dr F E Cheney of Boston A good-sized growth which proved, on examination by Dr F H Verhoeff, of the Massachusetts Charitable Eye and Ear Hospital, to be a hemangioma, was removed from the posterior surface of the eyeball and along the optic nerve The growth was removed with some difficulty by careful dissection There was very little hemorrhage and the closure was satisfactory The patient had suffered severe pain previous to the operation and the unilateral exophthalmos was very disfiguring The result has been very satisfactory, the pain entirely relieved, and the eye returned to position not in any way noticeably different from that of the other eye Vision is normal For some time there was a good deal of swelling and some ptosis, which has now disappeared There seems no apparent reason why the radical operation should endanger life, or the function of the eye, if the operation is properly performed Removal of serious danger to vision, relief of severe pain in certain cases and correction of a very disfiguring deformity, makes the osteoplastic resection of the outer wall of the orbit a most satisfactory operation to both patient and surgeon in appropriate cases

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS KNAPP AND TINKER

Dr James Bordley, Jr., Baltimore The views which Dr Tinker and Dr Knapp express are sadly at variance with my own experience My impressions of the Krönlein operation have led me to look on it as an operation of last resort and a rather careful review of my case histories has not caused me to change my opinion The operations which I have performed have, in the main, been unsuccessful I do not mean to imply that the surgical procedure was not carried to successful termination, but that either the object for which the operation was performed was not gained or where the basal cause was relieved the resulting scar was a nightmare for the patient Dr Tinker's modifications appeal to me The position of the skin wound and the method of handling the bone flap, I think, will greatly simplify the operation and materially lessen the resulting deformity Even then the operation is not free from serious defects

As an exploratory manipulation the operation does not appeal to me with half the force of the curvilinear orbital incision of Rollet The special advantages of this operation over the Krönlein lie in the fact that the resulting skin scar is much less prominent, the bony contour of the orbit is not disturbed and the operator works in the long diameter of the orbit and is much less apt to injure the globe and the ocular muscles In cases of long standing exophthalmos in which the muscles are stretched it is really astonishing with what facility the globe can be shifted about Indeed, I have seen fairly large masses removed from the orbit with great ease Other points in favor of the operation of Rollet are that it is as simple to study the inner as the outer orbital wall and the secondary scar formation never interferes with the movements of the eye The complications which I have seen as the result of the Kronlein operation are an exophthalmos converted into an enophthalmos with poor motion of the globe as the result of muscular relaxation, partial blindness either from operative traumatism or atrophy secondary to pressure resulting from extensive postoperative hemorrhage postoperative malposition of the bone flap undiscovered until the edema of the face and lids had subsided I have had other complications

Dr. Wells P Eagleton, Newark, N J Dr Bordley's remarks about the disadvantages of the Krönlein operation, I think, will be echoed by all those who have had experience with it My experience has been limited to two operations one of which left a very serious deformation in the way of an enophthalmos I advocated before the Academy of Medicine about a year ago an operation for the extraction of a foreign body, which I mentioned was better than the Krönlein operation, giving a better exposure of the contents of the orbit. It consisted of an incision through the skin and through the fascia over the temporal muscle, separating the temporal muscle in the way in which we do a decompression operation, but farther forward opening the temporal fossa elevating the small part of the brain and opening the whole roof of the orbit It appears from the description as a very serious prolonged operation It is very simple It is entirely extradural, and the exposure of the orbit is so complete and so much better than in the Krönlein operation, that though I have only used it in the one operation, I have said that I believed it would be applicable to the drainage of the orbit itself in all suppurative processes Since operating on a patient I have done the operation several times on the cadaver, and I am more persuaded that it will find a place in the surgery of the orbit It certainly does away with the deformity of the Kronlein operation and also with the facial paralysis

Dr. Lucien Howe Buffalo I think we should not confuse a given operation with the results which we obtain from it under different conditions The difference between the two should be kept clearly in mind The fact that the orbit is empty after the Krönlein operation does not detract at all from the value of the operation itself in suitable cases In regard to the excellent suggestion of Dr Tinker of first making the opening and then cutting from within outward I think those who have tried it will have no difficulty in making the incision just as it is set forth in the first description if the chisel used has sharp corners The bone is so very thin that the triangle is cut out without much difficulty The scar seems to be in some cases at least of small significance In one case I was surprised at the rapidity of the healing and it was so easy that I was also surprised that I had not done the operation before and have the conviction that I shall do it again as Dr Knapp recommends

Dr W C Posey, Philadelphia I have done the Krönlein operation four times, and in the last three cases I was perfectly satisfied with the results In the first case I followed the steps of the operation as given by Kronlein himself in Operative Ophthalmology" by Haab I chose a curved chisel to remove the segment of bone from the orbit as Haab recommended The patient on whom I operated was a child with dermoid cyst of the orbit In attempting the removal of the bone, the chisel caused the orbital rim to curl and in the subsequent healing there was some loss of bone with resulting fistula Ultimately, however, the fistula closed and the deformity was but slight In the remaining three cases in all of which a narrow flat chisel was employed a fine thin line of scar tissue remained It has been objected that enophthalmos results from the operation That, of course is to be expected, after the removal of a large growth from the orbit and can not, it seems to me, be offered as an objection to the procedure

Dr Matthias L Foster New Rochelle N Y During this discussion I have been surprised to hear so much about the bad scar left after the Kronlein operation A few weeks ago I saw a patient on whom I performed this operation when he was a child in 1900 twelve years ago Now he has a paresis of the external rectus and a scar in the skin so slight that unless your attention were called particularly in that direction you would hardly notice it Dr Posey's remark about the curved chisel recalls to me that at that time I had no such chisel as the one originally recommended I had only one with a thin sharp, straight edge, and I have never thought of a curved chisel since I have performed this operation several times and I do not think I have had a bad deformity as a result I have certainly not seen one and I think the operation excellent for exploratory or diagnostic purpose

Dr. Arnold Knapp New York My experiences with the Gigli saw have not been satisfactory I have not noticed any facial paralysis I think the operation of Pollet is excellent but it does not satisfy the purpose of the Kronlein operation which is to remove a tumor from the back of the eye, it is not possible to get at it if you do not remove some of the bone The operation is not a cure for all orbital conditions, it is indicated only for certain cases of circumscribed tumor back of the eye, and it seems to me in these cases the attempt should be made to try this operation If it does not succeed, then, of course, exenteration can always be done The objections of Dr Bordley can be avoided I have not been dissatisfied with the disfigurement which I have gotten in my operations

Dr Martin B Tinker, Ithaca I am quite convinced personally that the incision I have suggested offers a good many advantages I should be very glad to have some of you try it, and I should also like to know the results I have the impression that some men have not used quite as extensive a bone flap of the orbit as I have proposed The upper part of the wall of the orbit is very fragile and I have never seen a chisel sharp enough to cut it without more or less splintering It is only fair, however, to say that there is not necessarily very much bone deformity if the periosteum is reflected before the bone flap is cut, for the reason that flat bones reproduce readily if the periosteum is left, for example as in opening the chest wall and resecting one of the ribs If the Gigli saw is used in the way I have used it I am sure there will be no objection to it It cuts a smooth, clean flap in the bone

SUBCONJUNCTIVAL INJECTIONS IN OPHTHALMIC THERAPY *

E L JONES, MD
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Since adopting the practices herein to be outlined, it has seemed to me that the most fertile field in the treatment of the graver eye diseases and injuries is, likewise, the least known and most neglected Prior to the spring of 1904, descriptions of the methods of using, and the results obtained from, subconjunctival injections had not aroused in me sufficient enthusiasm to cause the practice to be put to trial My first efforts were limited to salt solution only, and a few with bichlorid of mercury Desiring a better knowledge than had been obtained from desultory reading of current journals, my earnest efforts were given to study of Darier's "Ophthalmic Therapeutics," which had been put on a shelf unappreciated To his teachings and practice due acknowledgment is made for much of the contents of this paper, while I hope that there has been sufficient variety and extension added in some directions as to give it an individuality of its own

I have no theory which satisfactorily explains the curative power of these injections in the wide range of conditions to which they are applicable In inflammatory troubles they are antiphlogistic, in indolent conditions they increase circulatory activities, in septic troubles they check sepsis and, where sepsis is impending, prevent it In specific troubles they avail much, but surely not by reason of the small amount of specific drug in them

We may use the modern terms of "raising the opsonic index, or increasing the antibodies, etc," or fall back on the comprehensive term of our forefathers—increasing the *vis medicatrix naturæ* It is not drug action in itself, but some process or principle in which drugs merely figure, as antisepsis is a principle, and bichlorid or phenol (carbolic acid) merely drugs which figure in it My practice is invariably to use as much as 2 c c, or 30 minims, of fluid, regardless of its composition, age or condition of patient, or nature of disease or injury treated, as I believe it is the distention and flushing of the lymph-channels that is one of the chief essentials of success

In the literature, authors often speak of injecting 1 or 2 or 5 drops of certain solutions The only regard which is paid to the quantity of any drug used is to keep within limits of its constitutional dose, just as in an ordinary hypodermic Bichlorid of mercury as a base was soon abandoned in favor of cyanid of mercury for the following reasons Cyanid is much less painful, less toxic, is compatible with all the alkaloids, with epinephrin chlorid, and various other drugs which are decomposed by the bichlorid

Darier tells of his long hunt for some preparation to palliate the tortures of injections, which he found in acoin One of my first patients, who had received plain bichlorid injections and who was afterward given cyanid with acoin said that, although he was a poor man, no amount of money would induce him to submit to the old as compared to the new treatment

Acoin is so easily decomposed by alkalies that I habitually combine it with a little boric acid, and keep a stock powder of one part acoin, one part boric acid and four parts salt—about one half grain of which is dissolved in the 2 c c of 1 to 1,500 cyanid The cyanid is sometimes used double that strength Almost immediately following injection of 2 c c the entire conjunctiva is raised in a bleb, one-quarter of an inch or more in thickness, swelling rapidly extends to the lids, and frequently the entire side of the face, down under the chin and to the opposite side, at which no alarm need be taken The chemosis for several days may entirely conceal all of cornea except a small pupil area Often the conjunctiva around the needle entrance has a devitalized blackish, or sometimes buttery look, as though it would necrose, lasting for several days, but finally clears up Only once, out of many hundreds of such treatments, has the membrane necrosed, and that over a small area which readily granulated, with just the same amount of adhesion of conjunctiva to globe as would have resulted anyway Every time an injection is made, the conjunctiva becomes adherent to the globe over an area about as large as a little finger-nail In some very rebellious cases requiring eight or ten repetitions, the subconjunctival space is entirely obliterated, but it causes no limitation or discomfort of movements, or distortion of lids The eye simply looks like white marble, and no more injection can be made for lack of space to accommodate it One eye such as this required removal because of a subsequent injury, and the parts were solidly matted together

In these treatments speculum and forceps are entirely superfluous, as the needle-point readily picks up the membrane The preferable points are midway between the recti muscles, and as far away from the cornea as possible, endeavoring to prevent the raised area from immediately reaching the cornea, which it ultimately does A few trials of 3 c c or more produced so much swelling that it was feared necrosis would result from the opposite sides compressing each other, and this amount is at present considered excessive

Notwithstanding the great reduction of pain by acoin, it was still, in some cases, so agonizing as to call for a hypodermic of morphin For the past five years I have regularly put one eighth grain of morphin and a like amount of dionin into the injection fluid in cases not already painful, and one-quarter grain in conditions already severely painful, as glaucoma The pain varies in different individuals from ten minutes to a half hour usually, in rare instances lasting several hours Where a dilated pupil is also desired, 1/100 of atropin is put in, which acts very quickly on the pupil

It requires from two to four weeks for the ecchymosis to disappear entirely, but it is not conspicuous The majority of cases require only one treatment, obstinate cases, as of interstitial keratitis, are not submitted to repetition oftener than once or twice a month In this disease, unless peculiarly violent, only one injection is given into each eye The same is true of most infections and traumatisms

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* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

I believe in one strong sledge-hammer blow, instead of frequent tack-hammer licks, to which the daily or tri-weekly injections of salt solution, usually recommended, might be compared Small children, in whom a single injection would save an eye from enucleation have been put under a general anesthetic, but they stand the same amount of fluid as the adult Darier's latest work speaks very highly of a watery saturated solution of guaiacol in tuberculous troubles, both as to its curative and analgesic effects Only a few opportunities have presented for trial of this, which will probably do away with the need of morphin

It shall be my endeavor to confine the cases reported to those in which treatment would be considered impossible by other recognized means, or in which better results are obtained than by well-sanctioned treatment, or in which the same results are obtained much more quickly and surely than by time-honored and authority-sanctioned procedures

By far the largest use to be found for this procedure, is in advanced or dangerous corneal ulceration Simple cases are not subjected to injection, nor those which do well under established treatments, ranging from boric acid to actual cautery or curet, but where the cornea is extensively ulcerated or breaking down, or the pupil area is involved or threatened, or the infection known to be especially virulent, the sooner used the better Not only is healing more sure and rapid, but the cornea is remarkably clear as compared to scar formation in general, sometimes requiring oblique illumination to detect whiteness where ulceration was fairly deep Accepted measures are used in addition, except for the few days when the swelling is so great that the cornea is practically covered by it Non-resident patients may be sent home during this period, with instructions to keep secretions washed off, and a clean pad on the eye If the patient is seen every day, the use of any local measures is considered as merely a placebo, to keep the patient contented while this extreme swelling persists My first concern in all cases of corneal ulcer is to see if the tear sac is suppurating and if it is so, and if the ulcer is central, the tear-sac is destroyed, the ulcer burned by actual cautery and the injection made at the first treatment These cases are usually so virulent that delay of a single day spells disaster

After treatment as outlined above, the early ulcer usually heals promptly without any further ado If it has nearly perforated, it will probably be destroyed because of being one or two days too late in receiving treatment Where the ulcer is not central, the injection is withheld until other means are tried and their inability to check advance of ulceration or infection is demonstrated Where increased tension exists, it is well to make a paracentesis at the time of injection The majority of ulcers, if taken reasonably early, receive only a single injection Cases of long standing, with large or deep areas of necrosis, may require repetitions every two or three weeks until healing occurs The greater transparency of the cornea in cases so treated has already been mentioned I shall not report cases under this heading, but give illustrations of other conditions in which the treatment applied is believed to have demonstrated its claimed efficiency

CASE REPORTS

SYMPATHETIC INFLAMMATION

CASE 1 —*Patient* —April 8, 1904, J S, a miner, applied for advice as to when he might resume the use of his one eye, the other having been destroyed by a gunshot three months previously The destroyed eye had no cornea left, being entirely white, and square-shaped rather than round, but not inflamed or tender The good one had full vision, and under homatropin three fourths of a diopter of plus astigmatism and absolutely sound

Treatment and Result —The patient was warned of the possibility of harm to the other eye, and told to come back on the slightest sign of disturbance to it April 26 he returned with the feeling of a foreign body in the eye, but no redness or tenderness or diminution of vision A few almost invisible specks on Descemet's membrane were detected, and he was advised to allow prompt removal of the blind eye, which was done under local anesthesia, injection with sterile water and an infinitesmal quantity of cocain Atropin and dionin were put in the good eye, hot fomentations used, iodid of potash given up to toleration, mercurial inunctions used to the limit pilocarpin sweats induced, and sodium salicylate given in the massive doses recommended In spite of these the disease progressed until patient could hardly count his extended fingers The turbidity of vitreous had veiled the fundus beyond vision, and it seemed as though the case was hopeless After failure of these measures, injection of salt, then of salt and bichlorid very weak, with no apparent benefit May 20, by an error, 30 minims of 1 to 500 bichlorid was given when the 1 5 000 was intended Although this caused a large area of the conjunctiva to turn very dark, it did not slough, but caused the progress of the disease to check and from that time on improvement took place steadily June 9, the use of cyanid was begun and as this was an early case with little experience behind it, the quantity used in the twelve treatments ending August 29 ranged from 10 minims of a 1 to 4,000 to 30 minims of 1 to 3,000 By this time all active symptoms had entirely ceased, the pupil was dilated and immobile, vitreous clear, and chorioid in its peripheral area studded with white spots about one-fourth disk diameter in size The refraction was moderately myopic, and correcting glass gave about 20/40 and fine print near Examination Feb 3, 1912, showed pupil natural size, responsive to light, dilated by homatropin to size fixed by adhesions originally With S 1 50 vision 18/30+, Jaeg No 1—*Tension normal*, gives no trouble of any kind

Several cases of chorioiditis illustrating various forms and severity will be presented

CASE 3 —*Patient* —Man, aged 44, reported with iritis of two weeks' duration, iris bound to lens to free which a quadruple strength solution of atropin was used for several days The patient said that he had had rheumatism, for which constitutional treatment was given Before long, maculæ showed on forehead and he admitted then that he had recently been under treatment for syphilis, and constitutional treatment was changed to mercury

Treatment and Result —In due course of time iris became freed, pain and inflammation ceased, and vision was well on the way to restoration when it began to rapidly go down from chorioiditis Mercury was pushed to limit, and when vision reduced to about counting his extended fingers a single *injection by the present time formula of 1 to 1 500 cyanid* with 1/8 grain each morphin and dionin, as well as the acoin anesthetic, was administered, with very little suffering, and usual great swelling The vision came up as rapidly as it had gone down, the fundus soon became again visible and the floating exudate absorbed, and in a few weeks vision rose to 18/40, finest Jaeg, which is its present status eight months later The vitreous has a small floating spot which will always remain It is just as likely the slight reduction of sight is from the iritis as the chorioiditis

CENTRAL MACULA CHORIOIDITIS

CASE 5 —*Patient* —Man aged 23 four weeks previously he had lost central vision in one eye for large headline print and proportionate reduction for distance Peripheral vision was best and fundus easily seen, vitreous being clear

Treatment and Result—He had been taking orthodox treatment from competent oculist to no avail Although it was late at night when patient was seen, it was not deemed prudent to defer injection at all, and this was given well nigh mid night Very soon improvement became evident, and in less than two weeks vision became absolutely restored, far and near

INTERSTITIAL KERATITIS

CASE 8—*Patient*—A R, girl, aged 17 came in June 1905, with ground glass whiteness of several weeks' duration in the cornea of the right eye Patient could count fingers only

Treatment and Result—After ordinary treatment for some time, cyanid injection was given with rapid clearing of cornea This was before the use of morphin and suffering was correspondingly severe In time, far and near vision reached full standard She subsequently developed the same disease in the other eye, and her dread of injection was so great that her protests against its use were yielded to, and although the severity of affection in this latter eye by no means compared to the first, its final standard was very much lower

CASE 9—*Patient*—A R, a sister of Patient 8, aged 16 came in the summer of 1906 with the same disease in one eye As Patient 9 was a deaf mute, the issue was more vital to her

Treatment and Result—In addition to established routine local and general measures, she was given two injections, a short time before the disease abated in this eye, the other developed the disease, and it was also given two injections Several months elapsed between the beginning of the first and the end of the second attack, yet both corneas were not only clear, but brilliant Asthenopic symptoms manifesting themselves one year later, the eyes were refracted, with full vision in each Reexamination Feb 20, 1912, showed no vestige of line or haze in either cornea and vision was full standard far and near

Cases thus treated are relatively free from the fine thread lines permeating the cornea, which are remnants of the new-formed vessels Some cases of pannus crassus, in which the vessels cover everything, hardly leave any visible streaks

GLAUCOMA FOLLOWING RETINAL HEMORRHAGE

CASE 12—*Patient*—Mrs H, aged 59 reported on May 6, 1911, on account of sudden loss of sight in the right eye a few days previously, which was due to extensive disseminated retinal hemorrhage The other eye was normal To lessen danger of vessels elsewhere giving way, patient was sent to her home in the country with directions to stay in bed and take Epsom salts up to the limit, and was put on iodin preparations, restricted diet, etc, under supervision of family physician She had for some time been suffering severely from headaches Things went well until she returned on May 22, with the eye congested and painful, for which epinephrin drops, and alkalies internally, were given Things went on to the worse and developed an agonizing, painful glaucoma, which did not abate from local or internal medication

Treatment and Results—As all authorities say that iridectomy is useless in these hemorrhagic cases, and leads to enucleation, she was given, on June 9, after paracentesis of cornea, an injection of cyanid and morphin with a few drops of epinephrin (adrenalin P D & Co) added The relief was immediate and lasted several days, but pain gradually returned and in spite of physostigmin (eserin) became so severe as to require another injection June 17, omitting paracentesis this time From lack of paracentesis probably, relief was not so great this time I started for the Los Angeles meeting next day with many regrets at leaving a patient in such bad plight A single communication a few days later reported pains as still existing, but on getting home I was gratified to find that the patient had soon become entirely comfortable, she has not had a pain up to the present, although the eye ball continues to be as hard as ever

Darier asserts that injections of weak solutions of epinephrin will surely reduce glaucoma tension, this I have realized in a number of cases in which the glaucoma was a complication, but I have not had cases of the primary disease to try it on

SEVERE EPISCLERITIS

CASE 14—*Patient*—I S man aged 28, had been suffering in both eyes with subacute episcleritis for three months This had resisted skilled treatment at the hands of a colleague, and as the patient was handicapped in earning his livelihood as a chauffeur, he was naturally anxious to find the quickest relief possible

Treatment and Result—Aspirin in large doses was used a few days without benefit, and on May 17 the eye worse affected was given the dionin morphin and cyanid injection, and as soon as swelling subsided sufficiently to permit this eye coming open, which was three days, the second was given similar treatment After the pains of the treatments passed away, there was no pain any more in either eye, and as soon as chemosis left both eyes the patient was enabled to return to work and has had no further trouble since At some former time, not known, he had passed through attacks of mild disseminated chorioiditis on each side, but not affecting the central areas Was highly rheumatic otherwise

Mild cases of episcleritis, or protracted and more severe when patient has been found willing to give the time to them, have been treated in the usual way locally and constitutionally, with actual cautery to persistent nodules, and the injection reserved for the more refractory cases

DOUBLE OPTIC NEURITIS FROM SALVARSAN

CASE 17—*Patient*—A girl aged 19, reported Jan 15, 1912 She was referred by a physician who gave her salvarsan November 10, for an infection of two months' duration On Dec. 31, 1911, the left, and Jan 2, 1912, the right eye had a cloud suddenly appear before it, covering the central sight Peripheral vision unaltered Right vision 9/200, Jaeger 14, left vision 18/120, Jaeger 8 at 15 inches Sclera was white, with engorgement of the normally visible arteries The right optic disk was too blurred to be definable, the left barely definable

Treatment and Result—Right eye was given injection of morphin, dionin and cyanid January 19, right vision 18/120, Jaeger 12, left vision, 18/120, Jaeger 12 Injection was repeated on the left side January 25 Right vision 18/80+, Jaeger 4+, left vision 18/80, Jaeger 4+ January 27, right vision 18/50, Jaeger 2, left vision 18/80, Jaeger 2 Together Jaeger 1 Patient returned home, came back February 14 with right vision 18/40+, Jaeger 1 easy, left vision 18/40+, Jaeger 1 easy Optic disks were still very hyperemic Engorged vessels were decidedly reduced Injection was repeated on the right, and on left on the 19th, on the assumption either that further good might result, or that the liability of relapse might be lessened, should such tendency exist

Finally I turn to the great field of eyes which have been cut, penetrated, punched or smashed[1]

I shall here reproduce one of the cases reported, the history of which was given to the late Dr Hubbell, at the Chicago Session of the American Medical Association, with the question if he with his large personal experience had knowledge of anything similar He replied that he did not, and that it should be reported, but he could not say what the "dope" had to do with it

CASE 19—Oct 14, 1907—Oliver D, aged 48, while hunting, received in eye from a considerable distance a No 8 shot from gun of companion Examination was made the same evening, the eye-ball was full of blood and vision gone A small slit was found at center of lower lid, near margin, where shot penetrated, but wound could not be located on the ball After explaining to patient that removal of eye was the other alternative, he was given an injection of cyanid and dionin, and returned at once to his home in another town. No pain or inflammation of any kind resulted, and when blood in vitreous was absorbed, a large spot of perfectly white sclera, many disk areas in size, was seen in bottom of eye, most likely where shot struck, but no shot could be seen Tension and appearance of eye were absolutely normal It was explained to him that trouble might develop in the future, and he was told to return promptly if certain symptoms occurred In May, 1908, he returned by reason of a fine circumcorneal congestion at lower border No pain or tenderness Examination showed a round bulging of iris at lower corneal angle, exactly size of a No 8 shot. To extract it, a corneal section as for cataract was begun, and patient being absolutely without self control, jerked away before it was completed, letting aqueous humor escape. Being compelled to go on, the section was made through front of clear lens, which was removed, and shot lifted from under iris by a scoop Eye was bandaged and patient left to return home on a mid-day train, but he went to a saloon instead and spent the day drinking Nevertheless, healing took place without any complication, and the eye is still in perfect condition, as far as appearances go

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[1] A paper entitled A Method of Preserving Eyes Which Are Usually Removed' was presented by me before the Specialties Section of the Pennsylvania Medical Society Oct 5 1910 and appeared in the Pennsylvania Medical Journal of January 1911 with illustrative cases, not only cases in which these conditions were recent but also cases in which secondary inflammatory or suppurative states had already become established.

"Replying Sept 15, 1910, to a letter of inquiry, the patient says that the eye looks better than when I saw it and can distinguish light from dark"

This patient reported once in 1911, when eye looked fine, having some peripheral vision

INJECTIONS AFTER MAGNET EXTRACTION

CASE 20—J L, miner, aged 23, had the right eye injured on the morning of Oct 8, 1908 At first sight his physician perceived that the matter was serious, although the patient did not, as he suffered no pain and vision was impaired only slightly In the afternoon the eye ball was soft, and a small wound was recognized between the insertions of the superior and external recti

Treatment and Result—Entrance wound was slightly enlarged and tip of large magnet, inserted between its lips superficially, withdrew a sliver of iron 1 by 2 by 4 mm The cyanid and dionin injection was given, and patient returned at once to his home in a nearby town He suffered no pain or inflammation, and when swelling subsided, a large area of white sclera was seen far forward in region of the wound Appearance of eye was otherwise absolutely normal Prior to injury its vision was supposedly acute, but it now has a high plus astigmatism, with sloping axis, and there is no accommodation whatever My belief is that the suspensory ligament of the lens was torn, and the lens rotated on its axis Things have thus remained up to the present, vision being 18/40 with a + 5 Cyl, and Jaeger No 1 with S + 4 0 added

I once heard the late Dr Herman Knapp say that these magnet cases made a sensational beginning, but that eventually many of them underwent slow degeneration, resulting in the end in blindness It is to prevent this that the injections should be given after each operation, should it prove as effective as we have reason to hope

PUNCHED WOUND IN CILIARY REGION BY DIRTY NAIL

CASE 22—*Patient*—G W, aged 4, came on morning of Oct 14, 1911, having been injured on the afternoon of October 12 in the following manner A large nail attached to a string, holding up the door to a pigeon cage, used for live bird shooting, was forcibly jerked out to drop door, and made a clean punch in sclera, one fifth inch below center of cornea through which the dark ciliary body showed Sight was gone, iris cupped and changed from blue to dirty brown color

Treatment and Result—Patient was etherized, the conjunctiva drawn over the hole by two stitches, and standard injection given, and as soon as fully over the anesthetic, the boy was carried home to report in one week He suffered no pain or inflammation and when next seen the eye had its normal blue color and flat iris The child being entirely unmanageable, the stitches were left to cut themselves out On examination Feb 2, 1912, the eye which was blind could not be singled out by the ordinary observer, having normal color, tension and volume

If these penetrating injuries can be treated at once it is probable that vision might be retained in some of the cases in which infection of the vitreous leads to destruction of sight in less than twenty-four hours It is also worthy of consideration that in certain especially dangerous operative, as well as accidental wounds, to wait for some sign of vitreous infection means failure as this probably begins in the depths of the eye and only shows its presence when nearing the exterior

In some cases suppuration already established in the vitreous has been stopped, but in no instance has vision been retained, or rather restored Where wounds are known to be limited to the anterior segment of eye, it is all right to wait for the signs of infection but if this is not sure beyond the shadow of a doubt, the injection should be given at once

Illustrative of the first proposition is the following case

CASE 23—*Patient*—A man aged 45 had lower cornea cut through by broken glass on June 11, 1911 He was seen twenty four hours later, the eye painful, but no sign of infection, argyrol 25 per cent was given at frequent intervals also atropin and hot bathing Pain continued very severe and on June 17, pus formation showed in wound and injection was given This did not cause any serious suffering, and there was no more pain afterward Leaving town next day, the patient was referred back to his physician, but healing was prompt and uneventful

All of the patients reported slept in their home beds and were treated as office patients, with no pretense of elaborate antisepsis, aside from sterilizing syringe and solution What larger fields of usefulness may exist and what drugs to apply thereto, remains to be worked out No reference is made to strong salt or brine injections for retinal detachment, as that has plenty of advocates, nor to sodium citrate for glaucoma, which is being sponsored by Thomas, of Oakland, Cal

The scant attention given to the possibilities of massive cyanid injections reminds one of the step child in a fairy story

100 Baltimore Street

ABSTRACT OF DISCUSSION

DR G C SAVAGE Nashville The day of subconjunctival injections is just now dawning in this country I believe that there is a great field for subconjunctival injections but the American profession has not availed itself of the good to come from this line of work very largely up to the present I suppose *Dr Jones is almost the oldest as he is certainly the most* persistent in the use of subconjunctival injections in this country and what he has said in his paper may be relied on to the utmost Dr Jones did not tell me of those early immediate effects following subconjunctival injections of cyanid of mercury I became almost scared to death the first time I used the cyanid injections as I was wholly unprepared The patient was more shocked than I You must not infer that subconjunctival injections are given every day and to all patients Dr Jones does not do that He has told you that if you can cure your patient by means that are milder you should do it This is what he does The subconjunctival injection of the cyanid will not be demanded often but when you have cases such as have been outlined in this paper you will be pleased with the results you get—not the immediate [illegible] it for these you will be better prepared than I was Dr Jones has not overdrawn the picture of that swollen face and that chemosed ocular conjunctiva I would not treat such a patient and let the patient go home Not only would the patient not come back, but his friends would not come I want these patients to be in a very private room in my own institution and I want to exclude visitors for a whole week I do not want the parents of the patient to see him or her and especially the father if he is a muscular fellow and hard to reason with I believe that this terrible reaction that comes in these cases brings about the beneficial effect, I do not know how There are two objections to the subconjunctival injection of cyanid of mercury The one I have already emphasized sufficiently, that is, the severe reaction Orbital cellulitis produces no more alarming effect than do these injections The other objection is the adhesion of the conjunctiva to the sclera It is as large as the little finger nail but appears in the beginning to be larger If it is possible to get some agent to replace the cyanid—and I think it is—then blessing on the man who will introduce that agent The improvement in the cases that should be subjected to this treatment is in every respect satisfactory Especially is this true in the more severe cases of interstitial keratitis, corneal ulcers which seem to be hard to control and in connection with the other severe conditions that have been mentioned in this paper My experience is in every way satisfactory barring the two objectionable features, the terrible reaction and the consequent adhesion

DR L WEBSTER FOX, Philadelphia Some years ago I published an article in which I quoted from an article by Dr Charles Stedman Bull of New York, entitled the 'Present Status of Subconjunctival Injections," published in the *Medical Record* in 1003 Dr Bull went over the whole field just as we are going over it to day In 1802 I was in Paris and saw Darier use subconjunctival injections of cyanid of mercury I said to him, 'We cannot use that treatment in America and live" I went to Liverpool and saw Dr Bickerton use the same drug He said of an Irishman on whom he had used it, "I had to lock him up or I never would have lived to welcome you here to day" I took courage at the results of my friend's experience and tried it in Philadelphia For cruelty to a patient I know of nothing so severe I have followed out very carefully, however, the method described in this article with a very encouraging experience A recent French writer has found that the addition of a certain amount of sugar (apparently brown sugar) lessened the irritating effect of the ordinary normal saline and also some of the preparations of mercury

DR ALBERT E BULSON, JR, Fort Wayne Ind When Darier's work came out, I followed his recommendations concerning the subconjunctival injection of cyanid of mercury, but, notwithstanding the use of acoin as advocated by Darier and Dr Jones my patients complained bitterly of the suffering I was so discouraged that I dropped subconjunctival injections altogether Two or three years later, while visiting in New York City, I found that the late Dr Bull was using subconjunctival injections of salt solutions in a large number of cases with apparently good results, he had abandoned the use of cyanid of mercury on account of the pain produced After hearing of Dr Bull's favorable results I again resumed the use of subconjunctival injections, first employing normal salt solutions and later solutions of dionin For the last two or three years I have used dionin to the exclusion of all other preparations in subconjunctival injections, and while the treatment is not a specific for any and all forms of eye inflammation, I have seen some very remarkable results in conditions that had resisted all other forms of treatment If Dr Savage is worried about the swelling caused by subconjunctival injections of cyanid of mercury he ought to see some of the patients who have recently had subconjunctival injections of dionin They look as though they had just come from a prize fight and had received the worst of the encounter But there is one advantage in the use of dionin and that is that the patient suffers comparatively little pain and what pain there is usually lasts only a period of three or four minutes If there has been considerable pain prior to the injection the patient invariably experiences relief and remarks about the comfort secured from the treatment Seldom does the patient offer any complaint about the swelling if he is assured that it is a part of the treatment and will probably bring about more satisfactory results than anything else I have not found that the injections are of so much value in the wide variety of cases mentioned by Dr Jones, though there are a number of diseased conditions, and particularly septic processes, in which the treatment seems to be superior to all other forms of treatment In intra ocular hemorrhage I know of nothing that will produce clearing of the hemorrhage like subconjunctival injections of dionin I use from 20 to 60 minims of a 5 or 10 per cent sterile solution and repeat the injection in from six to fourteen days, depending on results The swelling is even greater than when other solutions are used, but the discomfort is practically *nil*, and the benefit is far in excess of the benefit from any other form of treatment used

DR WILLIAM ZENTMAYER, Philadelphia I wish to report a clinical experience which seems to demonstrate that Dr Savage's idea that it is the cyanid of mercury in the injection which was responsible for the adhesion between the subconjunctiva and the sclera is not correct In a case of detachment of the retina in which I had used injections of saline solution, large xanthomatous areas appeared over the cornea with adhesions of the palpebral conjunctiva to the sclera This condition persisted during the six months the patient was under observation About a year ago I saw the patient after a lapse of ten years The original discoloration had disappeared but there was still firm adhesion to the sclera This would indicate that possibly future trouble might arise from this blocking of the lymphatics if the adhesion of the conjunctiva to the sclera were extended, and I should think that injections of such strong mercurial salts might have after effects which would be quite injurious

DR THOMAS W MOORE, Huntington, W Va About nine years ago I used my first subconjunctival injection of cyanid of mercury The patient was pugnacious and roaring with pain I felt like having the patient confined until I could leave the state The next day, however, when the pain subsided, I was astonished to see the result The patient had come in with the iris hanging out of the eye He had a very violent irritation and infection The next day it was cleared up in an astonishing way There was adhesion of the conjunctiva and sclera following but a most excellent recovery resulted and every year the patient comes in to say what a good eye he has I do not know of anything so good for the treatment, but we must make the injections rather weak I think it is the violence of the reaction, possibly, that cures the disease

DR ROBERT L RANDOLPH Baltimore I am reminded by Dr Moore that it is not only the cyanid of mercury which is apt to produce these adhesions between conjunctiva and sclera, but that subconjunctival injections of sublimate solutions of salt, etc may also produce the same effect and I think that this condition is not without harm to the eye A number of such adhesions in this situation must exert a disturbing influence on the nutrition of the eyeball In this connection I should like to say that my experience with all sorts of subconjunctival injections has been distinctly disappointing I have never used the cyanid of mercury, though after what Dr Jones has told us about it I might be led to think it of value in such a desperate disease as sympathetic ophthalmia

DR S D RISLEY, Philadelphia Very early in my experience I abandoned the cyanid of mercury injections, not only because of the severe pain caused by this drug but on account of the severe and often protracted reaction I cannot think that such extensive edemas as have been described here to day, involving the face and periorbital tissues, are free from danger Then, too, more or less serious and permanent impairment of function must follow the extensive adhesions of the conjunctiva to the sclera described in Dr Jones' paper The conjunctiva is a very important membrane—a lymphoid structure—and to destroy its function by these adhesions must interfere with the nutrition of the globe For these reasons my judgment is against the habitual use of such large quantities of so strong a solution of cyanid of mercury, even in the serious forms of ocular disease described by Dr Jones I would, therefore, employ such heroic treatment only as a *dernier ressort*

Dr H W Woodruff, Joliet Ill I have never had occasion to regret the use of cyanid of mercury The adhesions between the conjunctiva and the sclera are of no importance because the cases in which the cyanid is used are only cases of great severity, in which the loss of the eye is imminent—serpiginous ulcer of the cornea, infection following cataract extraction, etc. I believe it is in the latter that we will find it of most value, because it is very seldom that one is able to save an eye infected after a cataract operation I have had the misfortune to have a number of infections follow this operation, but have had the good fortune to save them by the cyanid injection Concerning the reaction and the pain, I have not had the results some have had I always use cocain in the solution and follow it with hot applications made constantly to the eye, and I very seldom have a patient who makes unusual complaints Of course, the condition in which one is using it is painful I feel so strongly on the subject that I believe a doctor instead of being put in jail for using the solution, as suggested by someone, should be put in jail for not using it where it is indicated I use about 8 minims of a 1 to 1,000 solution with 4 minims of a 4 per cent cocain solution

Dr John A Donovan, Butte, Mont My observation of cyanid of mercury is that in infected eyes and in those stages of ulcer in which there is beginning hypopyon and in injured eyes, if one can get the solution in just as the infection is beginning, it can usually be checked Guaiacol dissolved in glycerin, then in water, is a favorite solution in tuberculosis Pain accompanies its use but does not last so long I begin my cases with 6 minims and I never exceed 10 or 15 at the outside If, after using cocain one injects 6 minims of the solution, then puts in dionin immediately afterward, keeping on hot applications for fifteen minutes to half an hour, the enormous reaction or pain will not be complained of to such an extent and the patient can go home

Dr Hiram Woods, Baltimore My own experience has been about the same as that of Drs Bulson and Randolph I have not used the cyanid of mercury injection chiefly because I saw what others did and I did not see that the results were so strikingly better than from a good many of the ordinary methods For instance, Dr Risley says it is a *dernier ressort* I had a patient 78 years old with serpiginous corneal ulcer and double ectropion His arteries were as hard as cords and he was in bad shape One of my assistants who is an enthusiast on cyanid injections insisted that cyanid injection was the only thing that would give the man a chance I did not feel justified in using it, so I did a Saemisch operation with very prompt recovery It is hard to judge when we have reached the *dernier ressort* As far as general therapeusis is concerned, except in exudative choroiditis, I have not had much benefit from subconjunctival injections I have seen decided results from subconjunctival injections both of salt and of dionin solutions, I cannot help thinking it must be the violence of the reaction that does good I have seen the same thing in dacryocystitis Most of us have had a great deal of discouraging experience in cases in which we have hesitated to take out the sac With me, in the only cases of recovery after the injection into the sac of various solutions of copper and silver salts etc, this injection has been followed by very intense reaction I have seen several cases of stubborn dacryocystitis in which the reaction was intense, with swelling over the lids and down the cheek, and which resulted in cure Whether it was a coincidence or whether it is the relation of cause and effect is a question, but the resemblance of these cases to those related by Dr Jones is very striking

Dr D W Greene Dayton, O Major Smith, with whom I had the honor of spending three months in the fall of 1909, is an advocate of subconjunctival injections of cyanid of mercury for the cure of trachoma I did not see the patients long enough to judge of the results, but I did see a large number of patients who returned for a second injection or an injection in the other eye The severe reaction described here I did not see This may be a peculiarity of the natives of India They are given 5 to 10 minims of a 1 to 2 000 cyanid solution, together with a pill of opium about as large as the end of the little finger and are put to bed I saw these patients every day and did not see the severe reaction described I have had considerable experience with dionin in the treatment of plastic uveal inflammations following cataract extraction and my experience with it has been very satisfactory Of course I do not suppose any man depends on any one remedy in these desperate cases I have used dionin in connection with other remedies so that I am not in position to say how much of the effects should be attributed to the dionin and how much to the other remedies that I used I recall the case of an attorney from a neighboring town on whom I did a cataract operation by the Smith method He went home with vision 20/20 He came back in a few weeks asking for glasses I gave him distance glasses and a short time later he insisted on near glasses, as he was obliged to read his briefs in court I furnished him with reading glasses but he wrote me a little later that his eyes were not doing well He went to an oculist not far from his home, who made a diagnosis of iritis From my experience with such cases I thought that he was more likely to have high tension I wrote him to come and see me immediately I had him instil eserin, 2 grains to the ounce, 2 drops every thirty minutes and gave him sixty grains of salicylate of soda three times a day When he arrived he could not count fingers at one foot I put him in the hospital Across the street was a concrete house which he could not see at all for the first three or four days I continued the treatment and gave in addition subconjunctival injections of dionin 10 minims of 10 per cent solution, every third or fourth day according to the amount of reaction In a few days he could see the house In three weeks the vitreous cleared up and he went home with 20/20 vision I have had a similar complication after a discission, which yielded to the same treatment

Dr Nelson M Black Milwaukee Dr Jones has stated that he has no theory to advance which satisfactorily explains the curative power of the cyanid of mercury injections in the wide range of cases to which he has applied them with success, unless it is the result of flushing out the lymph channels In reading over his paper, the following hypothesis suggested itself Dr Knapp in his paper remarked, It is now known that most inflammatory conditions of the orbit are secondary to disease of the nasal accessory sinuses" Nasal accessory sinus disease is also now accorded a very prominent place as an etiologic factor in intra ocular disease The most recently advanced theory is that either by continuity or contiguity the blood or lymph circulation of the eye, or both are interfered with The anatomic relation of the lymph channels of the eyes and nasal accessory sinuses has not to my knowledge been thoroughly established, but sufficient work has been done to make it appear that the channels that drain both the eyes and sinuses empty into the same main sewer or lymph channel If such is the case disease of some one or more of the sinuses will fill to overflowing the main lymph channel or sewer and cause a backing up of the flow in the sewers draining the eye, the result being some extra or intra ocular disease Now will not filling the conjunctival sac with 30 45 minims of fluid make the increased lymphatic flow from such a head in the ocular channels of sufficient force to overcome this drawing back at the junction of the ocular and sinus lymph channels with the main, and allow of more drainage of the eye with consequent improvement in the ocular condition? As a hypothesis I do not see why it would not apply to the cases of ocular injury as well The facilities for carrying off infection and the products of inflammatory reaction would be increased by improved lymphatic drainage

Dr. E L Jones Cumberland Md As to the first objection in regard to the terrible appearance of the patient, I tell him what is going to happen Cotton is cheap and I always cover the eye and let it stay covered so I do not scare the family to death As to the pain, I spoke in the paper of the use of morphin, and with that you do not get the pain One woman with tuberculosis of the choroid came seventy eight miles got the injection walked back to the train and went home two hours afterward on many occasions Very seldom does the pain last over ten or fifteen minutes The adhesions do no harm whatever unless muscle operations are necessary The cases have grown better after lapse of time The patient with sympa thetic inflammation recorded eight years ago was left with a vision of 20/40, pupil dilated and immovable. Seven years afterward that iris was movable and the vision was almost normal. As to the violent reaction of the large injection as compared with the small, I would illustrate it theoretically by the flushing of a water closet, a small stream of water running continuously will not flush it, but the whole charge of the tank clears it out. The other day a boy 4 years old with orbital cellulitis came thirty-six hours after the injury and in the space of one hour the swelling had increased fully 25 per cent. The eye was fixed and the veins of the retina seemed to be becoming strangulated. I gave the patient a big drink of whisky and when I was ready for the injection it was given into the brawny, inflamed tissue of the orbit. Fifteen minutes afterward the child went to sleep and had to be carried to the train. He never had a pain afterward and the eye recovered.

SYMPATHETIC OPTIC NEURITIS

WITH REPORT OF A CASE

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Inflammation of the optic nerve as the result of sympathetic disease occurs in two clinical forms, of which by far the commoner is the form associated with uveal disease of the usual type. It is the opinion of most observers that this occurs far more frequently than is known to be the case, but that the plastic exudation in the anterior and vitreous chambers, to say nothing of the intolerance of the eye to light, makes thorough inspection so difficult that the condition is often overlooked.

Enough cases have been observed, however, to establish the fact that the condition occurs not infrequently, and in the patients who have recovered from sympathetic uveitis evidences of atrophy have frequently been noted.

A much rarer form is the one unassociated with uveal inflammation, which may appear as a simple neuritis, usually of low degree, or a neuroretinitis with exudates in the macula or around the disk, somewhat resembling the deposits of albuminuric retinitis.

Such cases have been reported by Hirschberg,[1] Pflüger,[2] Harlan,[3] Pooley,[4] Brailey,[5] Gepner,[6] Webster,[7] Alt,[8] Eversbusch,[9] Spalding,[10] and others. Schirmer,[11] in 1900, tabulated seventeen cases, including those above mentioned. All were of a relatively benign type, and those in which enucleation of the exciting eye was promptly done resulted in recovery with good vision. The exciting eye presented the same variety of conditions noted in cases of sympathetic iridocyclitis, though for the most part a perforating injury had occurred, and there was also the same wide difference in the interval between the injury of the exciting eye and the neuritis of the fellow eye.

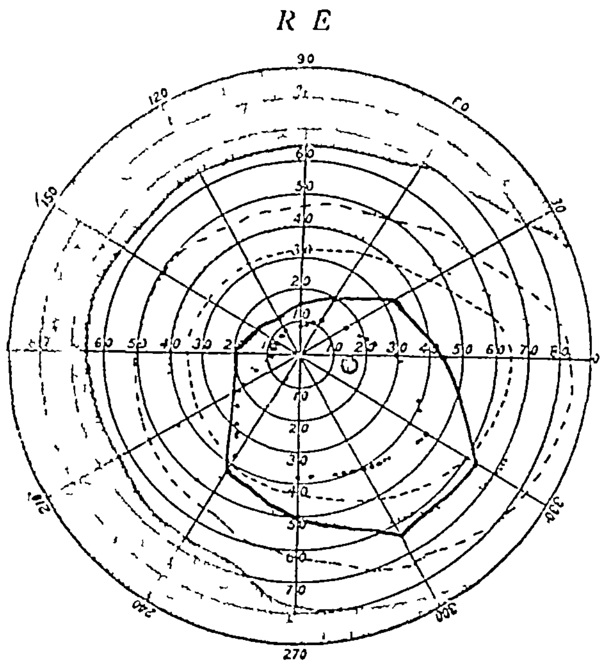
In Harlan's case, a girl of 18 had received an injury to the fellow eye "in early childhood," while in the cases of Brailey and Spalding, this interval was twenty-four and thirty-five days respectively. In some cases, the exciting eye was inflamed and tender, in others it was quiet.

The following case is reported as possessing certain clinical features of interest and as emphasizing the importance of enucleating sightless eyes even where they are apparently causing no trouble.

History.—F. L. N., male, aged 32, unmarried, farm laborer, presented himself for examination Oct. 12, 1911. When a child he had been struck in the left eye with a stick, which accident had been followed by a low grade inflammation which resulted in complete blindness. He did not remember that the eye was very painful, nor had he received any treatment. The vision in the right eye had been "growing dim" for five years. The patient had consulted an oculist at the beginning of the trouble and had been told that he probably had detachment of the retina and that it was useless to do anything. The previous year, about October, 1910, he consulted some one—whose exact standing as a physician seems uncertain—who had given him —1.50 cyl. ax. 20°, which he had worn part of the time.

Examination.—In the left eye the cornea was hazy throughout, the anterior chamber obliterated, the iris degenerated and a faint view through the pupil showed the dense white of a calcareous lens. The eye was not tender or red, the tension was normal, the globe apparently of normal size but with no perception of light. The patient complained of indefinite pains of a neuralgic character in the right temple, and of decided failure of vision for the past six months. There was no sign of uveal disease in the right eye, the pupil reacted normally, and the media were clear. The optic disk, however, was blurry in outline and hazy with slightly tortuous vessels and of the dull whitish appearance characteristic of the onset of a postneuritic atrophy. No retinal changes were apparent. The vision was 10/200, with marked contraction of the field, as shown in the illustration. There was slight photophobia and while the state of vision made such a test difficult it appeared that the accommodation was subnormal. A careful physical examination gave no evidences of general disease, the patient's health had always been good, and he was of temperate habits. Urinalysis was negative, as also was the Wassermann test made several days later.

Treatment and Result.—The patient was admitted to the hospital, and the left eye enucleated two days after the first examination. The globe was pulled well forward so as to cut the optic nerve at the apex of the orbit, and the nerve was found to be so reduced in volume as to be little more



Visual field chart of patient with sympathetic optic neuritis.

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1. Hirschberg: Klinische Beobachtungen, Vienna, 1874, p. 35.
2. Pflüger: Corr.-Bl. f. Schweiz. Aerzte, 1875, p. 185.
3. Harlan: Am. Jour. Med. Sc., 1879, lxxvii, 383.
4. Pooley: Am. Jour. Ophth., 1884, p. 60.
5. Brailey: Tr. Ophth. Soc. U. Kingdom, 1884, p. 87.
6. Gepner: Centralbl. f. Prakt. Augenh., 1880, x, 138.
7. Webster: Med. Rec., New York, 1881, xix, 258.
8. Alt: Am. Jour. Ophth., 1884, p. 28.
9. Eversbusch: Arch. f. Augenh., 1884, xiii, 106.
10. Spalding: Tr. Am. Ophth. Soc., 1883, p. 180.
11. Schirmer: Handbuch der gesamten Augenheilkunde, 1900, vi, Part 2, p. 86.

[illegible]

[illegible] cylinder. The gradual onset of the [illegible] taken in connection with the evidence of low grade inflammation in the left is also interesting. It seems fairly certain, after having made every allowance for possible inaccuracy, that the neuritis had been coming on for at least six months, and the fact that the history was of a [illegible] ure of vision extending even into the atrophic period shows that at no time did the engorgement reach sufficient height o interfere seriously with the vision, which was impaired ather by the gradual extension of the inflammation. The ersistence of a certain degree of atrophy is natural under the rcumstances and, taken in connection with the history, is dicative of a long standing inflammation.

Several of the earlier cases reported are of interest, representing the usual type of the affection. n Harlan's case, a girl of 18, admitted February 11, been blind in the right eye for many years; for the week the vision in the left eye had been diminishing. right eye had been injured by a blow from a stick, in

[illegible]

Webster treated two cases in 1881; one patient, a boy of 8 years, had been wounded in the right eye three months before. There was only a shrunken tender stump remaining. The vision in the left had been failing for three weeks, and was only 1/200. There was no external redness, but a high degree of neuritis, with tortuosity of the vessels, and hemorrhages. Enucleation was done at once, and the patient was treated with mercurial inunctions and iodides. Eight months later, the vision was 20/20 and the optic nerve was partially atrophic. In the second case, the uveal symptoms had begun, but the neuritis predominated. After enucleation the vision was 20/20.

All, in 1884, reported a very interesting case, which seems hard to classify and which is certainly unusual in

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12 [illegible] Arch. f. Ophth., 1900, xxxiii, 211.

type It began with a slight iridocyclitis, which soon subsided leaving a marked neuroretinitis which recovered after enucleation of the fellow eye This is unusual, at least, in my experience Where the infiltration begins as an uveitis it most frequently continues as such, and the neuritis is not apt to become the more severe affection, proportionately We see few cases of mild iridocyclitis from this cause, in any event, and these cases do not exhibit a more severe neuritis The clinical type of Alt's case is therefore of more than passing interest, as representing, perhaps, a border-line class between the two types of inflammation

In Spalding's case, quoted also by Randolph,[13] a woman, 65 years old, was struck in the right eye by a cow's horn The eye became severely inflamed and blind Thirty-five days later the vision had failed almost to light perception There was a typical neuroretinitis without other involvement After enucleation of the injured eye, the vision rose gradually to two-thirds without any medication

I have observed three other cases in consultation, which, being insufficient in detail, are not reported *in extenso* In one, an unsuccessful cataract extraction was followed by iridocyclitis and phthisis bulbi Two years later, the cataract of the fellow eye was extracted without the slightest secondary reaction A year afterward a low grade neuritis supervened, which was followed by atrophy and total blindness Enucleation of the shrunken globe was not done

Both the other cases followed penetrating wounds of the globe, with relatively low-grade inflammations which, nevertheless, progressed until the eyes were totally blind The eyes were not shrunken and had not been irritable enough to suggest the propriety of enucleation One patient received a fracture near the optic foramen, and the optic nerve, already inflamed was totally destroyed, the other patient, who gave a history of gradually failing vision for nine months, would not submit to enucleation, and disappeared

The exact status of these cases is still undetermined Schirmer thinks that the papillitis is due to the metabolic products of the bacteria, while the familiar form of uveitis is a toxemia

Randolph[13] says that sympathetic papillitis is a benign affection and a restoration to normal vision is the rule "The optic nerves constitute the route followed by the metabolic products, and this has been proved possible by the experiments of Horner and Knies, who found that injections of fluorescin and other chemical agents, into the subpial space of the optic nerve at its peripheral end, were followed by the appearance of these agents all along the optic nerve and in the other eye" While admitting the benign nature of the affection, as a rule, there is evidence to show that the cases go on to atrophy and total blindness, if the exciting eye be not removed

Sattler[14] reports a case of sympathetic neuroretinitis and serous uveitis after enucleation, with implantation of a glass globe The neuroretinitis was the more marked feature Vision was reduced to light perception The glass globe was removed and the optic nerve resected for 2½ cmm The ultimate vision was 6/10

Sattler remarks that, "contrary to accepted opinions, sympathetic neuroretinitis and certain expressions of serous uveitis may be excited even after enucleation of an eye destroyed by a non-infectious lesion," (i e, a wound from a bird-shot) Also, "It would appear that resection of the optic nerve yields the same prompt results which follow enucleation, if practiced for the rare and typical cases of sympathetic neuroretinitis and serous uveitis in which the operation on an infected or degenerated eye has been deferred until one or the other positive expression of this more uncommon and much smaller group of sympathetic lesions is already well under way"

It is a question if some of the cases of so called sympathetic optic atrophy do not belong to this class, and have not begun as a low-grade retrobulbar neuritis Certainly it is difficult to conceive of a simple atrophy from sympathetic causes, and in the cases of atrophy in which neuritis has not been observed, at least it could not be excluded

In this connection, Pechin[15] reports two cases of great interest In the first, a man of 51 was struck in the left eye by the flying head of a rivet, Jan 27, 1905 The patient was in the hospital for three months, but the eye was lost After some months had elapsed, he noticed that at times his vision in the right eye was dim In September, 1908, the attacks of dimness became more frequent, and the vision failed rapidly A month later, a diagnosis of optic atrophy in the right eye was made Pechin saw the patient December 2, the left eye had an occluded pupil with no light perception, the right eye had a partial atrophy of the optic nerve, with vision ¼, and concentric contraction of the field to between 15 and 20 degrees The general health was good in every particular

The second case was that of a man of 57, who was struck in the right eye by a flying splinter of steel March 27, 1906 A panophthalmitis followed, and six days after the accident, exenteration was done The piece of steel was not found The sclera was washed out daily, but the lids remained thickened and inflamed On the seventeenth day the splinter was washed out, and the inflammatory symptoms rapidly subsided The left eye, however, had become almost blind by this time, before the accident the vision had always been good Pechin saw the patient July 25, nearly four months after the accident There was partial optic atrophy, with vision of 1/50 No mention is made of enucleation in either case In the discussion, Holth, of Christiania, said that he thought these cases should be considered as cases of retrobulbar neuritis due to intoxication by the inflammatory products of the uvea or vitreous

It is evident that every patient with an eye capable of exciting sympathetic neuritis should be under careful observation, for the onset of the disease is insidious and is quite likely to escape the patient's notice, while even a relatively mild attack of neuritis, if unchecked, will probably be followed by a progressive atrophy and total blindness

19 East Forty Fourth Street

ABSTRACT OF DISCUSSION

Dr **Robert L Randolph**, Baltimore What concerns us most in this class of cases is the practical side of the matter and this lies in the fact that there is an element of danger in the retention of eyes which have been blinded by penetrating wounds, even though the external appearance of the eye may suggest no reason for concern The insidiousness of the affection is remarkable Within the last two years I have seen two cases in which the eye had been lost in childhood from a penetrating wound and retained well up into middle life One of the injured eyes had been subject to slight attacks of redness with some pain In the other case a minute hole in the iris made by a bird shot which had lodged in the orbit beyond was all that could be seen In neither case would the ordinary observer suspect that the eye was blind The presence of fine vitreous opacities in the one case and in both cases of transient attacks of haziness in front of the sound eye determined me to advise enucleation and yet the visual acuity of the good eye was normal and there was no contraction of the visual field In my opinion an eye blind from an injury should always be enucleated when the fellow eye becomes the seat of symptoms such as those described by Thomson and others no matter how little the symptoms may suggest a sympathetic affection I think, too, that in these cases the good eye should be subjected at least once a year to a careful examination as to the visual acuity and particularly as to the visual field

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[13] Randolph Norris and Oliver's System of Diseases of the Eye 1898 iii 732.

[14]. Sattler Tr Am Ophth Soc 1904 p 337

[15] Pechin Bull et mem Soc française d'ophth 1909, p 304

DR E E HOLT, Portland, Me One of my first cases of sympathetic neuroretinitis was in a school teacher in a town where I taught forty years ago The brow and right eye had been cut by a hatchet and sight was so poor that the man called it his "blind eye" The eyes looked well and gave him no trouble I, however, told him he should have them examined if he noticed the slightest change, as he might have serious trouble in his good eye He consulted me professionally Aug 28, 1882 At this time the right, good eye, showed effects of neuroretinitis and was nearly blind It now seemed too late to have the blind eye removed It was not long before the sight of the uninjured right eye was entirely gone, and he had to depend on his injured left "blind eye," which had only qualitative vision

MR JAMES W BARRETT, Melbourne, Australia I have had a great experience with sympathetic ophthalmia in Melbourne I can never see the sense in keeping any eye that has been inflamed and is blind The particular interest of this subject to me is the relationship of supposed cases of sympathetic ophthalmitis to syphilis I operated on a patient in Melbourne for cataract who had a severe attack of iridocyclitis, followed some four or six weeks later by the same condition in the other eye Half of the staff of the hospital declared that we had to deal with sympathetic ophthalmia, the other half with something else It turned out to be syphilis The other eye had become affected in consequence of the syphilis and since that period I have had a Wassermann determination made I suggest the possibility that the case described here may fall under that category Has any one here present seen a case of sympathetic ophthalmitis improved after the exciting eye has been excised after the ophthalmitis has begun? I have, unfortunately, had to deal with about sixty cases and in the whole of that record I cannot look back to any successful result once the disease has set in

DR F H VERHOEFF, Boston About three years ago Dr Feingold brought me sections of an eye which clinically he had regarded as undoubted sympathetic ophthalmia following injury I found that the sections showed the changes in the choroid described by Fuchs, but also other changes especially in the retina, such as I have seen only in syphilis, and I expressed the opinion that the case was one of syphilis Dr Feingold wrote me later that the patient had developed tabes thus confirming this diagnosis This case has caused me to regard with suspicion the cases recorded in the literature as instances of sympathetic uveitis occurring without previous injury I am also doubtful of the supposed cases of sympathetic ophthalmia associated with sarcoma of the choroid, which it seems to me, may have been due simply to coincident syphilis

DR M H POST St Louis About twenty five years ago a man was brought into the St Louis City Hospital with an injury of the eye I removed it and went on treating the patient The other eye had no apparent evidence of inflammation—none of those signs we look for as being the early symptoms of sympathetic ophthalmia The patient insisted that his sight was failing in the other eye I took it simply to be the fear which was acting on his mind and passed it over for a day or so, but when he still insisted, I examined the other eye and found that he had an optic neuritis I took it at the time to be simply a coincidence He was put on treatment He left the hospital and I do not know the ultimate result If there is anything in this idea that optic neuritis is sympathetic, then in our cases of infection in which we have enucleated we should be still on the lookout for the condition of the other eye to be determined not simply by observation of the reaction of the pupil but on the vision of the patient supplemented by ophthalmoscopic examination

DR S D RISLEY Philadelphia I should say if I may judge from my personal experience that cases of sympathetic optic neuritis are very rare I am sure that Dr Randolph's cases were thoroughly studied before he advised enucleation and I believe that in all such cases the patient should be given the prospective benefit of an enucleation I have seen but one instance that I am willing to record as sympathetic optic neuritis, and in that case the disease was arrested apparently by enucleation of the fellow eye It is not easy to say whether in the early stages of these cases the hazy border of the nerve increased congestion etc are not after all uveal disease, but in uveal disease of bacterial or toxic origin there is apt to be some slight loss in the range of accommodation which should be absent if the nerve alone were involved Now there are many other causes which may be coincidental for disease in the uninjured eye e g, syphilis or sinus disease In optic nerve disease associated with an old injury of the fellow eye, these possible causes should be eliminated for example a contracted field of vision with a central or paracentral scotoma, I think, should lead to a search for some possible involvement of the posterior ethmoidal cells or the sphenoidal sinus In one case in which I had advised enucleation there was a paracentral scotoma The trouble proved to be due to a diseased sinus This therefore should be excluded Without taking more time I should like to say in reply to the inquiry of Mr Barrett that in one instance of a genuine sympathetic ophthalmia I saw recovery after the enucleation of the injured eye In this case there was the characteristic symptom complex The patient then a boy of 12, was seen recently after the lapse of fifteen years and vision equaled 6/5 and normal field

DR SAMUEL THEOBALD, Baltimore I recall a case observed many years ago, of neuroretinitis unquestionably of sympathetic origin in which the exciting eye was enucleated and which under mercurial treatment, subsided The cases as has been pointed out are more amenable to treatment than those in which the iris and ciliary body are involved In reference to the great importance of carefully investigating the real trouble in supposedly sympathetic eyes before enucleating the supposedly exciting eye, I may mention a case seen several years ago in which the "good" eye was irritable and asthenopic Because of this condition the patient had been advised to have the blind eye enucleated Although vision was normal a very considerable amount of astigmatism against the rule was found When this was corrected he had no further trouble with the "sympathizing" eye and the other was not enucleated One should go slowly in such cases

DR. JOSEPH S LICHTENBERG, Kansas City Mo In the case of a locomotive engineer, aged 42 who was injured by the explosion of a glass water gauge I had the unique experience of seeing sympathetic optic neuritis develop under observation The patient had been treated for fourteen days before I saw him The left eye showed a traumatic iridocyclitis with a fine scar in the lower outer quadrant, from the limbus outward The vision of the fellow eye was normal The ophthalmoscopic appearance was normal The patient was put on the usual treatment with sodium salicylate and hot applications with no improvement Several x ray examinations were negative though experiments with similar glass were positive In about ten days the patient complained that the vision in the other eye was affected the eye showing no external evidence of inflammation At that time the ophthalmoscopic appearance was normal A blush appeared on the papilla with decreasing vision The surrounding retina was involved and the vision in the fellow eye sank to about 20 80 or 20/100 Still the vision in the exciting eye was abo

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the same At the same time the field in the fellow eye showed a contraction concentrically, with no scotoma centrally Taking this as a guide I finally enucleated the exciting eye and a prompt recovery took place In the standard text books there is practically nothing on the subject mentioned, except by Axenfeld who devotes only a short paragraph to it

Dr Adolf Alt St Louis I reported a case of sympathetic chorioiditis to this body in my chairman's address in which the patient regained normal vision of 20/20 with +1 75 D Two and one half months after the first sign of sympathetic disease appeared the eye had been enucleated

Dr Edgar S Thomson, New York Dr Randolph has touched on an interesting point germane to the present subject and that is the slight irritation that we see in the sound eye of people who have a sightless eye in the other side Frequently I have enucleated the sightless eye for cosmetic purposes, thinking the other eye was normal Immediately after the enucleation the vision would jump up to 20/15 In these cases there had been some irritation which I had not been able to recognize The diagnosis of sympathetic neuritis must be inferential there was nothing characteristic in my cases nor in most of the cases reported The causes mentioned by Mr Barrett had been eliminated My patient did not give the Wassermann reaction, the nose was carefully gone over the urine was examined and in every way any toxic condition which might attack the nerve was eliminated A number of the earlier cases were treated with mercury and were not improved until enucleation was performed so that the diagnosis rested on the history of an injury, the elimination of the conditions mentioned and most important the improvement of the eye after enucleation before any other treatment was instituted That rule has been applied again and again So in my case The eye was enucleated and I kept the patient under observation for a week or ten days and the vision improved from 8/200 to 20/200 In the other cases this marked improvement also occurred I cannot see that this can be interpreted in any way except that the supply of toxins had been stopped That the optic nerve is affected by toxic influences in sympathetic ophthalmia, I take for granted' is so well known that it is hardly worth while to mention it In ordinary cases of plastic uveitis with recovery (I have observed two) the evidences of inflammation of the nerve were too marked to be ignored and I think those who have studied the subject carefully are all agreed that sympathetic neuritis can occur Of course, in the diagnosis it is absolutely necessary to exclude everything else very carefully

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PHLYCTENULAR OPHTHALMIA AND ITS ETIOLOGY*

HENRY DICKSON BRUNS M D
NEW ORLEANS

Phlyctenular ophthalmia has long been of especial interest to me because among those of negro blood, who form about 40 per cent of the patients treated in my clinic, it is very common and shows itself under unusual and severe forms In the 451 cases studied, only sixty three patients, or 13 9 per cent, were white, while the other 388, or 86 1 per cent, were of negro blood In a little paper published some nine years ago[1] I showed that of 3,050 whites with conjunctival diseases, only 438, or 14 + per cent, had phlyctenular ophthalmia, while out of 2,002 blacks with conjunctival affections, 789, or 39 + per cent, were phlyctenular cases

That liability to the disease continues through life up to a greater age in the negro than in the white cannot be doubted The statistical study shows that among sixty-three whites the oldest was 30 years and the youngest 8 days old, the average age being 8½ years, while among 388 persons of negro blood the oldest was 60 years and the youngest 10 months old, the average age being 16 years In 1903, I found the average of the ages of 243 white subjects with phlyctenular ophthalmia to be 10½ years, that of 336 blacks and persons of negro blood 15⅜ years In a group consisting of fourteen whites, twenty-two mulattoes and seventy-six negroes, the average of the whites was 10¾ years, of the mulattoes, 12½ years, and of the negroes 18 1/5 years Not only does the disease pursue its victim among the blacks up to a greater age, but types of the disease are seen in this race that I have never met with in white people Thus all of the bulbar conjunctiva exposed in the palpebral opening to the inner or outer side of the cornea, or on both sides, may be red and thick and present one or more foci of ulceration To this type the name of *phlyctenule en plaque* is commonly applied in my clinic In some cases the cornea is surrounded by a ring of infiltrated material, and as the limbus in persons of color is always more or less pigmented such cases look very much like spring catarrh of the bulbar conjunctiva Confused by these appearances I once believed, and stated that children of negro blood were exempt from spring catarrh, but Dunbar Roy has proved the existence of spring catarrh in such children and, the assertion having been challenged, I convinced myself of my mistake by closer observation In some of these cases, however the resemblance between the two diseases has been so close that I must confess I have only satisfied myself that I was confronted by phlyctenular ophthalmia by seeing the condition disappear under the local application of calomel

Here, as elsewhere, the multitude of things that have been extolled as local remedies may well lead us to doubt the real efficacy of any With local treatment I have experimented more than once within, what seemed to me, justifiable limits In 1903[1] I published three tables presenting the cases of 121 patients treated locally only and with mercurials alone, eighty-six treated with mercury and other agents (chiefly atropin, silver, zinc, enzymol and borax-boric acid wash), and twenty-two treated without mercurials These tables showed the greatest, least and average duration of cases arranged in groups, according to treatment, numbering from fifty-three to one individual I cannot do better now than to repeat the conclusions reached then "In looking over these tables," I wrote, "we are struck first by the great variation in the duration of the disease Thus there are found patients who were discharged cured after but three days of treatment, while other cases dragged along for some sixty to 265 days This lengthened duration seems to depend rather on the number of patients treated on a certain plan than on the drugs employed That is to say, if a sufficiently large number of patients be treated by any plan a certain percentage of bad cases of long duration will be encountered Thus in 1897, 1898, 1899 and 1900, groups of fifty, fifty, fifty-three and forty-nine cases, respectively, contained many long cases, though the cases of short duration in the same group seemed to bear flattering testimony to the treatment employed, while the average duration of the 202 cases, twenty-five, twenty-three, seventeen, and sixteen days, respectively, compares favorably with that under any of the plans of treatment These patients were treated exclusively with yellow oxid salve and calomel, locally, a limited number being given a wash of oxycyanid of mercury (1-2,000), a drug we were then trying

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* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author s reprints

[1] Bruns Phlyctenular Ophthalmia in the White and the Black Races with Notes on Its Local Treatment New Orleans Med and Surg Jour August 1903

But that the drugs were not wholly responsible for the long duration of some cases or for the speedy termination of others may be gathered by observing that a group of eighteen (negro) patients treated in 1901, with calomel alone, recovered in from three to thirty-two days and in the briefest average time—ten and seven-eighteenths days—of any group of fair size, while a group of three (negro) patients treated in the same year, with calomel, atropin being instilled once daily at the clinic, probably on account of the angry look of the eyes, took twenty-one, fifty-two and 119 days, respectively, to recover. It will be noticed also that the average duration of cases in which local treatments with mercurials alone were used, and of those in which mercurial treatments were employed together with other drugs, does not vary materially and may fairly be given as from fourteen to thirty days. The same is true of the cases in which the natural course of the disease cannot be supposed to have been affected by the agents employed. In eight apparently rather mild cases in which the treatment consisted of instillations of normal salt solution alone, six patients recovered in from five to fifteen days, an average of nine and one-half days.

Further experience has only confirmed the belief that mercury in some form is the only local remedy of any real value, with the frequent instillation of "B. & C.," (the borax, boric acid and camphor water wash) perhaps to keep the eyes cleansed and soothed. When we complicate the treatment by the use of other drugs they only serve to aggravate the natural course of the disease. The bad cases which grow worse under simple rational treatment, we must deal with as we would with any other spreading, deepening, threatening ulceration of the cornea. Atropin carefully used, touching with tincture of iodin, irrigations with weak bichlorid or oxycyanid solution, canthotomy, perhaps, will all play their part. The successful management of corneal ulcers in persons of poor general health, with feeble powers of resistance and repair, is a serious task, and our bad phlyctenular cases are always found in such unhappy subjects. As we all know, as Mackenzie knew and so clearly and forcibly taught more than fifty years ago,[2] the general treatment is the important thing. Hygienic living, in its widest and its most meticulous sense, alone effects real cure.

In private practice the disease, in my experience, is rare and here, where all the surroundings of our patients are good, we may often convince ourselves that a proper regulation of the diet will suffice to prevent the recurrence of attack. Some years ago a bottle-fed infant was brought to me for consultation because phlyctenulae had appeared on the corneal limbus. The physician in charge, a very intelligent practitioner, was advised that, although the child seemed in good plight, something was wrong with the feeding. Close observation detected the fault, and on its correction a cure followed without the administration of a drug or the use of any local application.

All are agreed, therefore, that the phlyctenular outbreak is the outward sign of some general derangement. There is nothing to suggest the action of an infection from without, no ingenuity of reasoning has yet been able to ascribe liability to attack to either of the two etiologic havens of refuge, syphilis or malaria. Many have commented on its simultaneous occurrence with disease of the nose and pharynx. Mackenzie says:[2]

"It has been suggested by M. Morard (1817) that scrofulous ophthalmia is caused and kept up by a diseased state of the mucous membrane of the nostrils. He cures this by the application of a solution of nitrate of silver, of a strength of a scruple to an ounce of water, and by this means, he says, the ophthalmia is removed." A similar experience is easily to be had. Of the 451 cases considered in my tabulation 172 were examined in our ear, nose and throat department, through the kindness of my colleague Dr. R. C. Lynch. Of this number in 105, or 61 + per cent., rhinitis, swollen tonsils, suppurative otitis, etc., were found; but on the other hand in 67, or 38 + per cent., absolutely nothing abnormal was discovered by the rhinologist. In a number of these cases in which we purposely refrained from treatment correction of the nasopharyngeal conditions, removal of tonsils and adenoids, etc., was followed by rapid subsidence of the ophthalmia. As these patients soon passed from under observation, it is impossible to say how lasting was the relief.

The connection between phlyctenular ophthalmia and eczema has been observed by all. Unfortunately the exact number of our phlyctenular patients having eczema and of those not so affected, was not noted, but Dr. T. J. Dimitry (the assistant surgeon who carried on the investigation for me, and to whom I am indebted for the tables) and I were both struck by the numbers free from this complication. This was particularly true of the older patients, and especially of the negroes, among whom great numbers may be seen with severe attacks of phlyctenular ophthalmia yet showing no trace of any skin disease whatever. Stevenson found that in 100 consecutive cases eczema existed in 58 per cent., while in another group of 529 cases it was present in 19 per cent. and in still another group of 136 cases 83 per cent. He is naturally impressed with the important part played by eczema, and thinks that phlyctenular disease is due directly to an eruption of eczema or impetigo on the eyeball. On the contrary Wrekers says the changes are entirely different from those of eczema. Still another observer, Joseph, has observed, in thirty cases of phlyctenular ophthalmia, the co-existence of phthiriasis of the head. Treatment of the latter condition seemed always to have cured the ophthalmia.

It appears from these observations that authors have been influenced in assigning the cause for this common disease of the eyes by the place and the people among whom they worked, ascribing, by a very human prejudice, an undue influence to these frequently coexisting maladies.

Stevenson found eczema present in a large number of his cases, but even in his group of 136 giving the largest percentage, 17 per cent. were free from the disease and it is notable that the largest group (529) gives the smallest number with eczema, 19 per cent. I, on the other hand, in a subtropical climate with a large number of negroes among my hospital patients, see very many phlyctenular cases free from any trace of skin lesion. M. Morard found nasal disease in all of his patients and its cure was followed by disappearance of the phlyctenules. One hundred and seventy-two of my patients were carefully examined by a competent, conscientious rhinologist of large experience, and in more than 38 per cent. of them absolutely nothing was found. Neither eczema nor nasopharyngeal disease, therefore, seem to me to fulfill the conditions of a true cause. No one, I presume, will become, on account of the observations of Joseph, a strong protagonist of the causal relation between pediculus capitis and phlyctenular disease; yet all will be [illegible] to admit [illegible] pharyngeal [illegible] further [illegible] would expect to find commonly among the kind of children oftenest attacked by phlyctenular ophthalmia

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[2] Mackenzie: Diseases of the Eye, with Notes and Additions by Addinell Hewson, Philadelphia, 1855.

Wickers found, in fifty-eight children with phlyctenular ophthalmia, fifty-one, or 87 9 per cent, who responded positively to von Pirquet's test Derby, in his paper read before this Section in 1910, reported fourteen cases in which the cutaneous reaction was positive in eleven, or 79 2 per cent, and in his paper in the *Archives of Ophthalmology* he writes that of forty-three cases "classed as phlyctenular disease, because no better general term is available," thirty eight reacted positively, about 88 per cent, and this was the percentage found by Stock in his investigation Wilder reported to this Section, for the Committee on Relation of Tuberculosis to Diseases of the Eye, that of fifty three cases of phlyctenular conjunctivitis and keratitis forty-seven showed evidence of tuberculosis It may be added that Nias and Patton stated that in twenty cases of phlyctenular conjunctivitis, the opsonic index was abnormal But Mayou said that in five cases without evidence of tuberculous disease elsewhere, he had found the index normal

I believe it fair to say that the case for the tuberculous cause of phlyctenular ophthalmia rests mainly on the evidence of the von Pirquet test to which from 80 to 90 per cent of those with phlyctenulæ respond I was not able to get figures anything like as high as these from the children in my clinic Out of 102 tested by the von Pirquet method, sixty two, or 60 7 per cent, gave a positive reaction, and when forty out of these sixty-two were tested by the Calmette method twenty-one or 52 5 per cent, were also found positive but, what is more noteworthy the thirty-seven, or 36 2 per cent, of the 102 cases negative to von Pirquet were all negative to the Calmette test also My figures, then, approach those of Leber, and the evidence that 36 2 per cent of my phlyctenular children were not tuberculous seems strong Yet putting them aside, 10 to 12 per cent seems to be the irreducible minimum that cannot be proved to be tuberculous even by the skin test applied to the children met with in the free clinics of big cities, cities in which the dwellings are more crowded and the conditions of life more difficult than in New Orleans, where the children are in the open air most of the year So delicate is the skin test that it has proved either that practically all of us are tuberculous or that the reaction sometimes takes place in persons who have never been infected Hamman and Wolman[5] found that in *adults* a positive reaction cannot be used as evidence of clinical tuberculosis They found that in their non-tuberculous group, a group of cases from which they had excluded tuberculosis on severe clinical conditions, there were 57 per cent of positive reactions to the skin test, while in their "doubtful group" the positive reactions rose to 83 per cent A positive reaction, they say, to the ophthalmic test, made with a 1 per cent solution of Old Tuberculin, is extremely strong evidence that the case does not belong to the non-tuberculous group In the skin test a negative result is alone of clinical interest (moribund patients being, of course, excluded) and denotes, with a high degree of probability, either that the patient has never been infected with tubercle bacilli or that he was infected a very long time ago This cannot be the case in children, and children are admitted by all to be even more susceptible to the test than adults When, therefore, the test is applied to children—the children of the free clinics—with phlyctenular affections, and by those favorably inclined to the theory of tuberculous etiology, and we find always an irreducible minimum of from 12 to 10 per cent of negative reactions, by what logic can we be justified in disregarding these ten cases in a hundred and in declaring, in spite of them that tuberculosis is a true cause of phlyctenular ophthalmia — a cause, that is to say, which invariably precedes the effect in question Again, those who have concerned themselves with the determination of the prevalence of tuberculosis in children, present us with astonishing figures[6] Hamburger of Vienna, in an address on "The Incidence of Tuberculosis in Children" at the conference held in Edinburgh in July, 1910, gave the percentage of positive reactions to the von Pirquet test in children from the seventh to the tenth year as 71, and from the eleventh to the fourteenth year as 94 per cent These are ages at which phlyctenular disease is most common Shaw and Land at the same meeting, said that Albrecht of Vienna found evidences of tuberculosis in 14 3 per cent of 1,558 autopsies on children between the first and sixth year, and in 50 1 per cent in 335 autopsies on children between the sixth and twelfth year Comby of Paris has lately published the findings in a series of 1 117 autopsies on children In children over 2 years there were 435 autopsies, 283 giving evidence of tuberculosis—65 per cent From these figures it is evident that so large a percentage of the children seen in our hospitals are tuberculous that it would be more than surprising if evidence of the disease were not found in a great majority of those with phlyctenular ophthalmia These considerations numberless observations of the disease in negro youths and adults of splendid physique and apparently robust health and the fact that the recurrence of phlyctenular outbreaks is often checked by attention to the bowels and simple regulation of the diet (as in the case of the infant related above) are incompatible in my mind with belief in the tubercular theory

Since reaching this conclusion I have found comfort in the discovery that others had felt the weight of these difficulties Thus, Lafon divides phlyctenular disease according to its etiology into three groups In the first, the patient has become tuberculous before the appearance of the disease, and the outbreak is probably due to the action of a tuberculous toxin in the second there is neither a personal nor a family history of tuberculosis but the phlyctenules appear after an exanthema in the third are those apparently in robust health at the time of the efflorescence In the latter an examination will usually discover gastro-intestinal disturbance, enlarged tonsils, adenoids, etc This is the largest class and in it the eye disease is caused by an auto intoxication I cannot see, however, why we should ascribe the same disease in one case to the specific toxin of tuberculosis, in another to that of one of the exanthemata and in a third to an auto intoxication produced by gastro intoxication or nasopharyngeal disease It would seem more logical to ascribe the outbreak to some cause itself the effect of the several abnormal conditions

Schuetz and Videky divide phlyctenular cases into two etiologic groups those of exudative origin, which do not react to tuberculin, and get well on a diet free from sugar and eggs and containing but little meat, and those which react to tuberculin and are cured by tuberculin Igersheimer, though putting the case in favor of the tuberculous theory in the strongest way, does not hide from himself that phlyctenulæ appear in some who cannot by any test be shown to be tuberculous Why, he asks, does phlyctenular disease appear in the non-tuberculous and why is the child especially prone to the disease? He recognizes also that there must be a constitutional difference between those who have phlyctenular disease and those who never have it, and must have observed, as we all have, that numbers of the tuberculous never suffer an attack In answering his question he cites Czerny's dictum that such children are of "the exudative diathesis" and are very liable to infections other than tuberculous This seems to be but a new way of stating the old proposition that phlyctenular ophthalmia is commonest in scrofulous persons and that such persons are of delicate constitution and especially liable to derangements of health and the attacks of disease In the new formula "exudative diathesis" is substituted for "scrofulous," and our later perception that such subjects are especially prone in early life to tuberculous infection is incorporated

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[5] Hamman and Wolman Arch Int Med, 1010 vi 000

[6] I am indebted for these figures to Dr J B Elliott Jr professor of practice of medicine in Tulane University, who most kindly looked up the subject for me

The theory that most commends itself to me is that which likens phlyctenular ophthalmia to herpes—to the mild herpes labialis, the "fever blister" Their behavior—their sudden unexpected outbreak, their mild and regular course and disappearance without bad effect when uncomplicated—is very similar In the especial liability of children, they are alike Phlyctenulæ are situated at the ends of peripheral nerves according to the classic research of Ivanoff, and it seems more than probable that they are neuropathic Dr Isadore Dyer, professor of dermatology in Tulane University, says [7]

"I consider all herpes essentially neuropathic and I believe that the recurrence of the 'fever blister' in some individuals as a genital lesion, or about the face, is an evidence of this Shock, any fulminating illness, excitement, acute intestinal disturbances, auto-intoxications, nasopharyngeal or respiratory disturbances may cause herpes in any of its forms"

Many of these are the conditions that precede or accompany the phlyctenular eruption The cause of the neuropathy would seem to be some disturbance of metabolism or an auto-intoxication In phlyctenular disease the evidence that the intoxication is usually of gastro-intestinal origin is abundant Scrofulous children and those infected with tuberculosis are well known to be liable to such derangements The class that we see in our clinics, unwashed ill-clothed, sleeping in ill-ventilated and often crowded rooms, poorly fed, and at that on a diet often the least suited to their age, must in the presence of the least constitutional weakness be almost constant sufferers It may not be always possible to get from these patients a history of gastro-intestinal derangement, but neither, as we all know, is it easy to elicit from the majority of them an account of any but the most striking illnesses Disorders of the gastro-intestinal functions are, perhaps, with them so constant as to be regarded as a natural state of things and entirely normal That a brisk purgation, preferably with a mercurial, and subsequent regulation of the bowels is the measure favoring most the safe and rapid resolution of an attack, and that recurrence may be prevented by regulation of the diet or even by the withdrawal of certain articles of food, facts recognized by hosts of observers, speak, even in the absence of complaint, of the almost universal prevalence of gastro-intestinal derangements among phlyctenular patients How nasopharyngeal disease by restricting the supply of oxygen favors auto-intoxication and the baneful effects of diseased tonsils are now well understood We can readily imagine, therefore, how an organism, probably from the beginning none too robust, struggling in vain against the additional handicap of any one of these morbid conditions becomes unable properly to digest and assimilate its food is further overwhelmed by the toxins resulting from this failure of function and exhibits the effects of these poisons by symptoms especially conspicuous in the skin and nervous system, and at times in the conjunctiva (hyperemia, phlyctenules)—parts embryologically not unrelated It would seem equally clear then that the tuberculous process having been checked by tuberculin or by hygienic measures, the eczema having been cured [8] adenoids or diseased tonsils having been removed, the exanthema having run its course the especially indigestible or unassimilable food having been withdrawn such an organism may possess strength enough to perform its functions in a fairly normal manner and the auto-intoxication and its symptoms may gradually disappear

It seems to me, then, more logical, in the present state of our knowledge, to regard phlyctenular ophthalmia not as the effect of a specific toxin (tuberculous) or as an ocular eczema, but rather as a neuropathic phenomenon brought about by an auto-intoxication originating in the great majority of cases, as the effect of treatment clearly shows, in derangement of the gastro-intestinal functions, not all persons being equally liable to these morbid processes, but much more particularly those in whom we recognize clinically the scrofulous, lymphatic or exudative diathesis, such persons being especially liable to tuberculous and to other infectious diseases which in their turn further depress the metabolic and catabolic processes, the functions of digestion, assimilation, secretion and excretion, and thus intensify and perpetuate the state of auto-intoxication Subjects of the disease (10 to 25 per cent) are found it is true, in whom we can recognize neither tuberculosis nor the signs of the scrofulous condition, but they like nearly all those affected, belong to the least favored classes and live under conditions the least hygienic and on food but little suited to childhood, the period of life when phlyctenular disease is most prevalent The recession of scrofula, so prevalent in all classes when all lived as only the poor live now, before advancing civilization and the increase of hygienic living, renders it not impossible that its stamp was set on the race by these unfavorable conditions, and it is possible that we see now in individuals without the earmarks of scrofula restricted and particular effects that were once common and cumulative in the race

ABSTRACT OF DISCUSSION

DR RICHARD J TIVNEN Chicago I am not sure I interpret Dr Bruns correctly as saying that only rarely opacities following on phlyctenular trouble seriously interfere with sight My own experience is not in consonance with this view, as I have observed such serious sequelæ sufficiently often to warrant the conclusion that they are neither infrequent nor rare I agree with Dr Bruns except on the question of the tuberculous origin of phlyctenular trouble I am convinced that conjunctivitis eczematosa should be regarded as a manifesta-

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* In a note courteously replying to one of interrogation by the writer

[8] Henry W Stelwagon says in speaking of the constitutional causes of eczema Digestive debility dyspepsia and its frequent accompaniment constipation must be given a high place in discussing the causes of the disease In fact in my experience it stands first in importance Im [illegible] tor as it is in adult It is even of greater im [illegible] infants and children — Treatise on Diseases [illegible] p [illegible]

tion of constitutional tuberculosis. Its proper management must include not only the usual ocular or local treatment, but also and more particularly the constitutional measures appropriate to the treatment of tuberculosis. At the head of the constitutional agents advised I would unhesitatingly place tuberculin. Dr. Bruns' objections to the tuberculosis theory are briefly that 10 to 12 per cent. of cases fail to respond positively to tuberculin tests; that tubercle bacilli have never been found in the phlyctenule; that inoculation with phlyctenular material in animals has failed, except in one instance, and that the phlyctenular structure shows no resemblance to tubercle; that the prevalence of tuberculosis explains the high percentage of positive reactions to tuberculin tests; that phlyctenular disease does appear in the non-tuberculous and that many tuberculous patients never suffer from an attack. Opposed to Dr. Bruns' first objection is the fact that a positive reaction is obtained in 80 to 92 per cent. of cases. In reference to Dr. Bruns' second objection Dr. Derby's explanation may possibly be the correct one, viz., that the phlyctenule may be atypical and free from bacilli. Dr. Bruns' third objection is favorable to the tuberculosis theory, since victims of a general tuberculous process may be particularly favorable subjects for the development of a tuberculous ocular manifestation. In reference to Dr. Bruns' fourth objection, it may be said that it is not always possible to determine a tuberculosis. Many tuberculous patients never suffer from an attack but it is not essential that every case, say of pulmonary tuberculosis, have associated with it a phlyctenular trouble to substantiate the conclusion that phlyctenular trouble is of a tuberculous nature any more than it would be reasonable to conclude because this association is absent that phlyctenular trouble is not a tuberculous manifestation. The tuberculosis theory of phlyctenular trouble is perhaps not absolutely established. Sufficient data, however, have been adduced to warrant thoughtful consideration.

Dr. Arthur G. Bennett, Buffalo, N. Y.: In an experience of a great many cases of phlyctenulosis I agree largely with Dr. Bruns' opinion. In the Childrens' Hospital if I am called for an eye case it is sure to be a case of phlyctenulosis. I always have a von Pirquet reaction taken and have the urine examined. One striking thing is that in every case the urinary examination shows a marked excess of indican and my feeling has been that most cases of phlyctenulosis are due to intestinal toxemia. Undoubtedly many cases also show the tuberculin reaction but I look on it more as a coincidence than actually as an etiologic factor. In Buffalo we have a population of 90,000 Poles and the children are kept under the most deplorable hygienic surroundings. Many of them are weaned on beer. The milk they get is horrible. They are allowed tea and coffee and the general feeding of the child is about as bad as it possibly could be. It is these children who break out with phlyctenulosis. One clinical observation brought to my attention and frequently brought to my attention by the parents is the most vile odor of the urine, and my attention has been directed to that very largely to counteract it, the therapeutic measure outside of the proper feeding which I have found to be of the greatest value is the administration of small doses of sodium salicylate. It is really surprising to notice the disappearance of indican under small doses, 1 or 2 grains three times a day. A marked improvement in the phlyctenular condition will also be seen. I am sure we can shorten an attack by putting the patient under proper hygienic conditions, such as we can get in a modern childrens' hospital. I do not feel that tuberculosis is the etiologic factor in the majority of cases.

Dr. Samuel Theobald, Baltimore: Fuchs and other German authorities call phlyctenular conjunctivitis or keratitis, as the case may be, eczema of the conjunctiva or cornea. This, in my judgment, is the true nature of the affection and just as eczema of the face and other parts of the body in children is so often due to intestinal intoxication, so, I am thoroughly convinced, is phlyctenular ophthalmia due to this same cause. Long before the term "intestinal intoxication" was coined, I taught that phlyctenulosis was due to systemic infection from the alimentary canal, and while this form of ophthalmia is more apt to occur in tuberculous or scrofulous subjects, because of their poor resisting power, it occurs over and over again in children who show not the slightest sign of a tuberculous condition. Bad hygienic surroundings, as pointed out by Dr. Bennett, unquestionably play an important etiologic rôle. The fact that the skin and other reactions indicate the presence of tuberculosis need not by any means force us to conclude that the ocular malady is of a tuberculous nature. I entirely agree with Dr. Bruns that only in rare instances is this so. One of the most valuable remedies for phlyctenular keratitis, as might be supposed from its etiology, is an energetic calomel purge. At the Baltimore Eye and Throat Hospital a powder containing 2 grains of calomel, 2 of scammony (now an almost unknown drug) and 6 grains of rhubarb is frequently administered at the outset of the treatment. As to the importance of not always attaching too much significance to the tuberculin reactions, I may mention the case of a boy brought to my office some time since with a typical interstitial keratitis. One of the first questions I asked was, Has the child had any trouble with his knees?" The answer was "Yes, he has been in a sanatorium all summer under treatment for tuberculosis of the knee joint." Tuberculin tests made at the Johns Hopkins Hospital I was informed had given positive results and he had been treated accordingly. He was put on biniodid of mercury and in due course of time the tuberculosis of the knee joints disappeared.

Dr. F. H. Verhoeff, Boston: Dr. Bruns brings no evidence to support his conclusion that phlyctenular disease is a form of herpes other than the observation of Ivanoff that phlyctenules occur at nerve terminals. This observation, however, is of no special significance because the surface of the cornea is so rich in nerve terminals that no matter where a phlyctenule occurred, on account of its size it would cover a number of nerve terminals. Phlyctenular keratitis certainly does not closely resemble herpes corneae, with which we are familiar as occurring in adults and occasionally also in children. My own belief is that phlyctenular disease is always due to tuberculosis although I must admit that the proof of this is not absolutely complete. I base this view on the large proportion of cases which show clinical evidences of tuberculosis and on the results of tuberculin tests. It is true as Dr. Bruns points out that the percentage of von Pirquet reactions in phlyctenular cases is about the same as that for children free from the affection. He does not discuss the fact, however, which to me is especially significant that in certain cases the Calmette test and the subcutaneous test give rise to an outbreak of phlyctenules. In a discussion before the American Ophthalmological Society and another before the Surgical Section of the International Tuberculosis Congress in 1908 I suggested that phlyctenular diseases, as well as the eczema often associated with it, were due to anaphylaxis, a view that later was brought forward by others. I called attention to the fact that if this explanation were correct, it would be expected that certain cases would be in a so-called refractory stage and would fail to react to tuberculin. This answers Dr. Bruns' objection that a certain percentage of phlyctenular cases do not react to tuberculin. It would be well to test such patients again after the eye trouble had been quiescent for some time. In a similar way could be explained the fact that phlyctenular disease occurs chiefly in children and only in a certain proportion of those infected with tuberculosis, since only after comparatively recent infection and under certain conditions, would it be expected that the phenomenon of anaphylaxis would manifest itself locally in the eye.

Dr. Hiram Woods, Baltimore: I know nothing more difficult than to draw proper conclusions from such data as have been given here to-day. To begin with, we take the fact that a lot of these children are ill fed, live in bad air and are dirty; we have the disease occurring in a structure that we cannot get and keep aseptic, put the patients on better food and under better conditions of cleanliness, turn them out of doors and they improve. We find, without scientific tests, that a little improvement in hygiene helps them resist the constantly recurring infection from the nose or from the outside Clinicians are making a careful distinction between a tuberculin skin reaction and clinical tuberculosis Probably 75 per cent of all children, irrespective of symptoms, will give a positive von Pirquet What are you going to infer from that? Von Pirquet told me himself that he thought two negative results in children were positive proof of the absence of tuberculosis, but he himself did not attach an enormous importance to the positive result of the reaction in absence of clinical tuberculosis in children Suppose you get a positive von Pirquet in these children I question very much if that justifies us in assuming a tuberculous cause If, on the other hand, the tuberculous origin is proved by the fact that tuberculin cures the disease, and prevents recurrence, then we have some positive proof As to the rôle of intestinal absorption for which Dr Theobald uses his "inherited taste" for calomel, where does a positive diagnosis of intestinal intoxication come in? Dr Bennett has spoken of excess of indican Undoubtedly it represents the absorption of indol, and indol is one of the conjugate sulphates resulting from intestinal putrefaction Many internists say it is positive proof of intestinal intoxication, many others say it is not. In a recent communication de Schweinitz said he was surprised that the profession had not got rid of the fetish of indicanuria Some clinicians in Baltimore state that after we go over all the other tests we come back to indol as the most available evidence of putrefaction The argument against the significance of indican is that patients have these troubles without it, then they must have them from some other cause, again, they recover in spite of the presence of the indican, which means that after the various remedies, we reduce the indican to a point at which the system can tolerate it I do not believe we can draw dogmatic conclusions from any data in our possession

MR JAMES W BARRETT Melbourne, Australia The discussion is of extreme interest to me because of the great extent of phlyctenular disease in my section of our country It is a disease found frequently in Melbourne in hospital practice, but almost never in private practice Our population, although very well to do, has curious dietetic habits The diet is almost entirly carbohydrate The children have bread and butter and jam and tea for breakfast, bread and butter at 11 a m (what they call a 'piece) a fair meal of meat and pudding at 1 p m another "piece" during the afternoon and wind up with tea and bread and butter in the evening The result is that the intestine must be loaded with cellulose just as we see among the Egyptians in the clinics of Cairo I know that syphilis has no relation to phlyctenules and I believe, with Dr Woods, that whatever is the result of the von Pirquet, phlyctenule is not associated with tuberculosis And we have reached the conclusion that the importance of the von Pirquet is when it is negative The bulk of children give it and I do not know what it may mean All that we are clear about is that it is not usually associated with these gross lesions I shall be interested to learn from Dr Bruns whether there is any analogy between the diet habits of the children of whom they have been speaking here and the diet habits of our own children

DR. GEORGE S DERBY Boston It does not seem possible in the light of present knowledge to say that all phlyctenular disease is due to tuberculosis, although there are some very striking facts which point to this I think it has not been worked out yet but evidence is being gradually accumulated to show that the incidence of phlyctenular disease bears a very close relation to the incidence of tuberculosis in childhood Now as to why more cases of phlyctenular disease do not show the gross lesions in the body, it is well known that in only a small percentage of those affected with tuberculosis do we get the gross manifestations these children overcome the infection without ever showing signs of the process That is why so many react to the von Pirquet test I should like to ask Dr Bruns why if tuberculosis has nothing to do with phlyctenular disease we get phlyctenulosis as a result when we give the cutaneous tuberculin test at times and also when we introduce it into the conjunctival sac In Dr Theobald's case in which tuberculosis was blamed for the knee condition I think the mistake would not have been made if the practitioner had realized that these cases of congenital syphilis are especially susceptible to a superimposed tuberculous infection I have had considerable experience with tuberculin in these cases during the past five years and I feel very doubtful whether any patients have been much benefited by its use Certainly if phlyctenular disease is a form of tuberculosis it is an atypical form about which we do not know a great deal at the present It has seemed impossible to cure some of the patients with severe cases of this disease until they have passed a certain age—15 or 17 years In spite of all the care in the way of general hygiene with which we can surround them they have recurring attacks and although these attacks are diminished in number and milder in character we have been unable to prevent them entirely

DR. JOHN A DONOVAN Butte Mont In our state school we used to have a great deal of this disease For the last several years everybody admitted has had the adenoids removed and the children are put under different hygienic conditions from those at home with the result that I have seen only one case of phlyctenule in three years In my private practice no single remedy is so efficient to prevent recurrence as removing adenoids

DR. H. D BRUNS New Orleans I have not heard from the supporters of the theory of tuberculous etiology any argument strengthening as it seems to me their contention All of those who have had most experience have found that it does not do to lay any stress whatever on a positive reaction to the skin test but a negative reaction especially in a young person is the best evidence that the person is neither tuberculous nor liable to tuberculosis There is one thing on which most of the physicians who live in the north lay stress which is not true in the south where I live Their cases occur wholly in children Grown up negroes men 50 and 60 years of age come into my clinic in New Orleans, afflicted with phlyctenules I have seen big muscular roustabouts with phlyctenular ophthalmia who certainly were not suffering with any form of tuberculosis known to clinical medicine Most of the people I see who have phlyctenules are badly fed They live on corn bread and bacon with some kind of dry vegetable beans or rice The babies are weaned on bacon rind instead of beer The French clinicians who have of late been studying phlyctenular ophthalmia incline to divide these cases into two classes Some are tuberculous and the disease is cured they say by the injection of tuberculin, some are non tuberculous and can be cured by regulation of diet In fact some go so far as to specify that if certain articles of diet are withdrawn patients recover I cannot refine so highly but I always advise a diet of fresh meat and green vegetables with a good supply of fresh air

REMOVAL OF THE LENS IN HIGH MYOPIA

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Although the surgical treatment of high myopia since its revival by Fukala in 1889 has been pretty generally practiced and recognized by most ophthalmologists as a justifiable proceeding there is still a great difference of opinion as to its immediate and permanent value and its dangers The recent text books on ophthalmology do not very strongly advocate this operation, they emphasize the importance of employing it in only carefully selected cases, and even then they consider it somewhat dangerous

Robert Hesse,[1] in an article reviewing the operations in Professor Dimmer's clinic since 1891—in all sixty seven eyes were treated—concludes that in only one case could any injurious [illegible] tion — a case of infection He considers the operation entirely justifiable

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[1] Hesse R [illegible]

Thompson[2] concludes that the growth of the long axis is not affected, that changes in the choroid and vitreous opacities are contra-indications, and that it is doubtful if the second eye should ever be operated on — at any rate, not before a lapse of two years

Geert[3] concludes that

1 Axis lengthening in aphacic eyes remains progressive after operation

2 Axis lengthening is as great in the operated eye as in the non operated eye

3 Vision in the operated eye remains constant in a smaller number of cases than in the non operated eye

4 The serious complications of high grade myopia are more numerous in the operated eyes

5 Operative complications enhance the chance of deleterious myopic changes

6 The most favorable age is from 16 to 30

7 The function of the retina sinks more in aphacic eyes than in non operated eyes

Most authorities are of the opinion that the age limit is about thirty years, and that the amount of myopia should be at least 16 D I have done only nine operations on five patients, and while this is a rather limited experience, the results have been so uniformly satisfactory that I may be more optimistic than those who have had a wider experience, and therefore some failures

Two of the cases included in this paper have already been reported in the *Transactions of the American Ophthalmological Society* in 1907 The immediate results in these cases were brilliant, particularly in the second in which the fundus changes were most extensive and vitreous opacities also were present I am still in touch with these patients and know that the good vision has been maintained

Case 1 —A girl aged 16 first seen in May 1906 had 21 D of myopia in the right eye and 16 D in the left, vision in each eye with the correction was 20/70 The fundi, except for large staphylomata, were in a very healthy condition Fukala's method was used, the lens in the first eye being removed by linear extraction forty eight hours after needling, the lens of the second eye was treated in the same manner After discission of the capsules the vision for the right eye was 20/30 with + 1 50 cy 90, for the left eye, 20/30 with + 1 50 s + 1 50 cy 90, with + 3 00 added for near This patient has pursued her vocation as a stenographer, and when I saw her last her vision was practically 20/20 for each eye

Case 2 —A woman aged 31, first seen in October 1904, was kept under observation until October, 1906, when the first operation was performed Her vision for the right eye was 20/200 with —22 00, for left eye, 20/100 with —20 00 There were extensive changes in the fundus, commencing changes in the lens, and floating vitreous opacities This case was treated in a manner similar to the first, save that three needlings were required in one eye and four in the other before the linear extraction could be made Recovery was uneventful Discission of the capsule was made, resulting in vision of 20/30 with —2 00 cy 90 for the right eye and 20/30 with —1 50 s + 2 50 cy 165 for the left eye, with 3 s added she read Jaeger 1 This vision has been maintained up to the present time, and the patient, while being careful of her eyes, reads and sews with great comfort

Case 3 —A woman, aged 26, had always been short sighted The shadow test showed a myopia of 22 D for the right eye and 21 D for the left with an astigmatism of 1 against the rule in both eyes, the vision was 20/70 with this correction There were floating opacities in the vitreous, especially in the right eye, and large staphylomata, with a general atrophic choroiditis Two needlings were required for each eye and were made at intervals of about three days A linear extraction in each eye was followed by a discission of the capsule with the DeWecker scissors, resulting in a vision of 20/40 for the right eye with — 50 s +2 cy 90 and 20/40 for the left eye with +2 cy 105, an additional +2 50 s enabled the patient to read and sew with comfort There were no unfavorable symptoms at any time during the treatment The final operation was done in October, 1910, and I saw the patient last in March, 1912, at that time the vision was the same, 20/40 for both eyes, and the floating opacities had cleared to a large extent I may add that her vision is almost as good without her glasses as with them and she frequently dispenses with them save for close work

Case 4 —A woman, aged 50, gave a history of short sightedness all her life She was referred to me in January, 1910, by a colleague who desired an opinion as to the wisdom of an operation Her vision had been failing rapidly, owing, apparently, to opacities in both lenses which were so dense at that time that only a very poor view of the fundus was obtainable Her vision was reduced to little more than counting figures My colleague informed me that there were vitreous opacities in both eyes, extensive chorioidal changes and a myopia of from 20 to 22 D I advised a preliminary iridectomy with a subsequent extraction The patient then disappeared and we neither saw nor heard of her until early in the spring of 1911, when she called on my colleague and was again referred to me with the request that if it still seemed wise I proceed with the operation I therefore made a preliminary iridectomy on both eyes on April 11, 1911, extracting the lens of the left eye on May 3 There was considerable soft lens matter which irrigation with normal salt solution failed to remove entirely, that which remained was gradually absorbed, leaving a dense, opaque capsule On June 12 a discission was made with the DeWecker scissors I was then obliged to leave the patient in the care of my assistant and I did not see her again until November The opening in the capsule was still insufficient and a second discission was made with entirely satisfactory results, her vision being 20/50 with —1 00 s —3 cy 90

On account of the soft lens matter in the first eye I decided to needle the second cataract before attempting its extraction hoping thus to shorten the process The eye was needled on November 10, 12 and 17 Two days after the last needling the lens was quite swollen, the anterior chamber shallow, the tension slightly elevated, and immediate extraction was indicated Unfortunately, the patient suddenly developed a severe mucopurulent conjunctivitis which yielded after five days to treatment by irrigation of nitrate of silver, 1/20 of a grain to the ounce No alarming symptoms, such as increased tension, etc developed during this time, and the lens was extracted with no complications, the anterior chamber was irrigated with normal salt solution and all the soft lens matter apparently removed A few days later, however, it was seen that a rather large amount remained, which was gradually absorbed, leaving only the capsule A discission of the capsule is yet to be made, and we hope that fairly good vision will be obtained

Case 5 — A woman, aged 27, complained that her sight had gradually grown poorer for some time past Skiascopy showed a myopia of about 28 D for both eyes The media was clear and the fundus of each eye in good condition except for large posterior staphylomata Vision for both eyes was 20/70 with —27 00 The lens of the left eye was needled on Nov 15, 1911, with practically no reaction and very little effect, five days later it was needled again with no reaction A third needling was made November 24, and on the 29th a linear extraction was made When the patient was discharged from the hospital on December 7 the eye was perfectly quiet but there was a good deal of soft lens matter remaining Atropin, dionin and hot bathing were used, the lens matter being absorbed very slowly On Jan 30, 1912, an opening in the capsule was made with a Ziegler knife, resulting in vision of 20/70 with —2 00 cy 115 March 14, she read 20/50 with this correction, which vision I have no doubt can be greatly improved, as the opening in the capsule is not satisfactory and another needling will have to be done

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[2] Thompson A H Brit Med Jour Oct 29 1910, p 1321

[3] Geert C Ophthalmology, vii 674

My experience in these cases is that the age of the patient is not a contra-indication to this operation The Fukala method, that is, needling of the lens followed by a linear extraction, is the best, in all young subjects at least If the patient is 50 or over, and the lens is more or less cataractous, a preliminary iridectomy with subsequent extraction in the usual way would seem to be the wisest course It is important that the patient be kept under close observation during the entire course of treatment in order that any unexpected complications may be promptly dealt with I do not regard extensive fundus changes with vitreous opacities, provided that no active inflammatory process is going on, as contra-indicative of operation, and this was proved, in three of the cases reported, by the remarkable vision obtained notwithstanding the presence of vitreous opacities and extensive chorioidal changes

Of the danger of detachment of the retina following this operation these cases can prove nothing, as none of them have been under observation quite long enough, I cannot see, however, why it should be any more likely to occur than if the operation had not been performed

It will be seen from the report of these cases that the younger the patient the fewer the needlings required, in Case 2, that of the young girl, only one was necessary, while in the other and older patients from two to four were required

In all these cases the patients have been more than satisfied with the results, and they have been able to carry on their work and to enjoy life as they could never have done without this operative interference

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ABSTRACT OF DISCUSSION

DR PETER A CALLAN, New York High myopia is rare in this country as compared with Germany, France and Russia To my mind the operation is perfectly justifiable in young people under 30 or possibly 35 As to the dangers of infection, of course that holds good for all operative procedures for opening the eyeball, but it is growing less and less all the time when we are more careful The other great danger is the detachment of the retina My private belief is that possibly a few more cases occur after the removal of a clear lens than would occur otherwise in these high myopic cases, but if we examine the statistics the percentage in these operated cases is very little greater than in other cases Bjerke, in 1902, collected reports of 1,176 cases, with operations by twenty five surgeons, mostly German, French and Austrian He found 4 85 per cent of detachment of the retina in these operations The methods were various Discissions with linear extraction were the most numerous As to the results Schweigger had fifty cases in which he operated by discission and linear extraction with 14 per cent of detached retinas as a result Von Hippel with 184 cases by the same method had 5 per cent Thus, it is not altogether the method to which the failures are due in the reported cases as done abroad Very few are willing to depend on simple discission I have had, all told, about fifteen cases I have operated in four cases on both eyes at the request of the patients, who were well satisfied with the result I do not think one is justified in operating on the second eye until the patient fully realizes the danger he runs infection, detachment of the retina, etc Von Hippel collected a number of cases in which he compared the cases of patients operated and not operated on He found in the latter that 6 7 per cent had detachment of the retina The operated cases had only 5 4 per cent Frielich collected a large number and he found in the operative cases 3 3 per cent of detachment, whereas in the non operative cases he found 2 2 per cent If anybody has doubt in his mind about the operation he should in the young do a discission which will take a longer time but that is of small account What is a year or eighteen months when the whole future of the eye is involved?

DR. S D RISLEY, Philadelphia I have many times in the past in this Section opposed the extraction of the transparent lens in high myopia on purely theoretic grounds that is to say, because of the well known pathologic conditions of the fundus in highly myopic eyes I am still opposed to such operation so long as the myopia is progressive But of late years the question has presented other features For example, I have had slowly accumulating in my office a considerable number of reports of cases of high myopia which for many years had been under observation and treatment The pathologic conditions had subsided the myopia was no longer increasing; there were no additional chorioidal atrophies, the eyes, barring the scars of former disease were well But in quite a number of these patients I have seen other things transpire There was increased impairment of vision, without notable pathologic change in the fundus due to changes in the crystalline lens The image of the fundus details, as seen with the ophthalmoscope, was distorted the lens was amber colored or opalescent and was apparently undergoing contraction changes, which caused the increasing impairment of vision and a corresponding increase in the helplessness on the part of the patient Since this was not due to pathologic changes in the fundus I have in several of these myopic patients during the last five or six years, advised the extraction of the lens and the results have proved that the advice was justifiable One case has interested me very much The patient aged 62 had been under my direct observation since 1886 She had large patches of chorioidal atrophies including the macula in both eyes so that the central vision was gone but the periphery of the fundus was healthy and the fields were good She was steadily becoming more helpless She had a myopia of 22 D in one eye and 18 D in the other I explained the situation to her and advised extraction of the lens to which she very promptly consented A preliminary iridectomy was performed and a few weeks later the lens was extracted A capsulotomy proved to be necessary as a final procedure The patient was so well pleased with the result that she returned in three months and begged me to operate on the other eye which I did with equally good results I have had four experiences with eyes which I had been watching and treating for a long period of years but at the time of operation they were well eyes I am still opposed to incurring the dangers which are inevitable in eyes of patients under 35 years of age with a transparent lens, progressive myopia and the pathologic chorioidal disease still present

DR H D BRUNS, New Orleans We, in this country see so few cases of high myopia that it seems to me we ought to report our experiences with this operation I have operated about eight or ten times and my experience makes me think that in his late book on the treatment of myopia Hirschberg has reassembled the exact indications for the operation It ought not to be undertaken unless there is about 15 or 16 D of myopia It should be done in people not over 20 unless for special reasons I believe this is important because the operation that offers by far the greater chances of successful result is the operation by repeated discissions It is long, it is trying on the patient and on the surgeon but its safety is undoubtedly very much greater than the attempt to extract the lens from a myopic eye By explanation to the patient that the process is going to be a long one that neither the patient nor the surgeon must take the question of time into consideration, a satisfactory understanding will be reached I have had the good fortune to watch three of these cases over a considerable period of time, one case for three years, a woman of about 22 on whom I operated because there was constant pain in the myopic eye The other eye was good The patient complained so much of this pain that after full explanation I removed the lens, with entire relief of the pain I saw the patient about three years afterward the eye was in good condition The other two patients I watched for five and eight years, respectively In both cases the patient returned and requested operation on the [illegible] and bot were operated on One patient I saw recently, the eyes are still in good condition and the vision is as good as it was a short time after the operation That was true of the other case It seems to me, considering the helpless condition of these people, that we should attempt to help them The operation is to be undertaken only after we are sure that the eyes are free from active disease, and highly myopic and that the patient has poor prospects for a livelihood, it is therefore especially demanded in those unfortunates whom we see in hospital practice In such cases it is an entirely justifiable operation and a beneficial one

Dr Linn Emerson, Orange, N J Relative to operating on the second eye my patient was a housemaid who recently came to this country and could not get about the streets without being led She had 20 D of myopia I operated on the first eye and with a +2 cylinder she had 20/70 vision She came back and I operated on the second eye without fully explaining things to her On the whole the result in the second eye was equally good but for the next two years that girl was the bane of my life, because I could not satisfactorily explain to her why she could not read a newspaper and could not peel potatoes or do similar work I will never again do an operation on the second eye until I have fully explained the probable result to the patient

Dr William H Bates New York I agree that this operation is justifiable in certain cases I can recall one patient operated on fifteen years ago in whom the operation on one eye was satisfactory but the patient did not come back to have the other eye operated on I saw a patient last winter with a myopia of 20 D in each eye and a vision of about 10/200 She had great difficulty in doing her work and in getting around and was anxious for any relief that could be given I advised removal of the lenses I gave preliminary general treatment which included large quantities of water to drink and some atropin I tested the patient's refraction when she was looking at the 10/200 line with the retinoscope and it agreed with the glass that she accepted I had her hold up some fine print with the glasses at about 6 inches she was not able to read it I told her to make an effort to read this fine print at 6 inches, and while she was doing it (by simultaneous retinoscopy), her myopia was a great deal less, and afterward when she looked at the card the vision was better than 10/200 It had gone up to 10/100 I had her repeat the exercise until now her vision is 20/40 with 20 D She said Doctor you have done me a lot of good but when are you going to operate?"

Dr Francis Valk, New York It may be regarded as heresy, but I do not believe that myopia is always due to an elongation of the optic axis, this implies that we have two kinds of myopia, one kind due to elongation of the axis and one due to the curve of the cornea That brings up the question whether we should operate in these cases If we have a myopia of 20 D, as Dr Risley's case, with macula chorioiditis we operate successfully because it is a case of refractive myopia Such patients do well On the other hand, if we have a case of myopia in which we have a long radius of curvature, and there is a posterior chorioiditis then it is simply a matter of choice whether you operate or not

Dr Walter E Lambert, New York The greatest discretion and conservatism should be observed in these cases, but there comes a time when the patients demand relief They are practically blind and constantly growing worse, and even though extensive fundus changes exist, and vitreous opacities, the opposition is, in my judgment based on my experience, justifiable and advisable

NORMAL VALUES OF THE ACCOMMODATION AT ALL AGES

ALEXANDER DUANE, M.D
NEW YORK

Three years ago I presented a report to the Association,[1] giving measurements of the accommodation in some six hundred subjects of all ages, and deducing from these measurements a revision of the standards which Donders had established for the progress of presbyopia and which for fifty years had been universally accepted After the paper was published, its results were adopted by various authorities[2] as a substitute for those of Donders

Since then my researches have been carried on continuously A number of new cases have been added, and the findings in some of the old cases have been revised In all, nearly 1,500 subjects have been examined, and out of these considerably over 1,000 have been utilized The results thus obtained are now presented

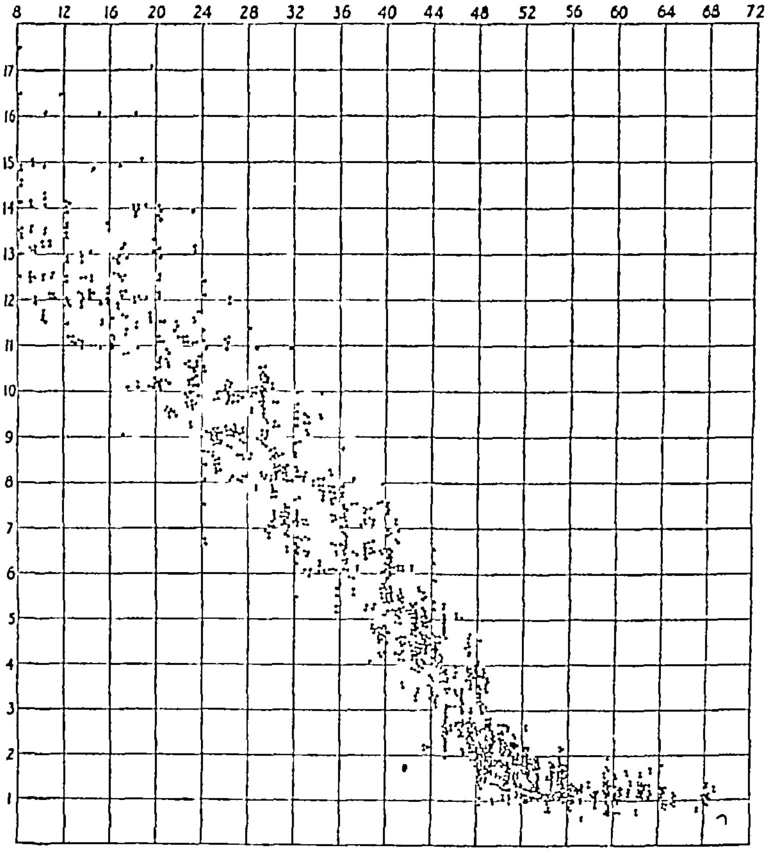

Fig 1—The accommodation at different ages Each dot represents the maximum accommodative power of an individual eye at a given age the figures on the side of the chart denoting the accommodation in D the figures at the top denoting the age The accommodation was determined by rendering the patient emmetropic and measuring the distance of his near point from the anterior focus of the eye i e from a point 13 mm in front of the cornea This of course gives higher values for the accommodation than if the measurement is made as is generally done from the cornea itself

The details of the method pursued in making the investigation were fully described in the previous paper, and will not be repeated here Suffice it to say, that each subject was first rendered fully emmetropic by glasses and his accommodation was then carefully and, wherever possible, repeatedly measured, due regard being had always to the conditions under which such a test should be made.[3] The value thus found for the accommodation was expressed in dioptries and plotted in a chart. Figure 1, in which each dot represents the accommodation of a single eye at a given age, shows how this was done. The aggregate of dots forms a sort of galaxy, which exhibits a very characteristic and quite regular curve. The great mass of the dots are included between the limits of the curves *AA* and *BB* (Fig. 2), and for the most part between the curves *AA* and *CC*. These, therefore, are the upper and lower limits for normal cases. Values lying below *AA* must be regarded as subnormal and those above *BB* as supernormal, or in many cases doubtless as representing errors of measurement.[4]

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[1] Duane A The Accommodation and Donders Curve and the Need of Revising Our Ideas Regarding Them The Journal A M A June 19 1909 p 1992

[2] Fuchs Lehrbuch der Augenheilkunde Ed 12 Weeks Diseases of the Eye Percival The Prescribing of Spectacles.

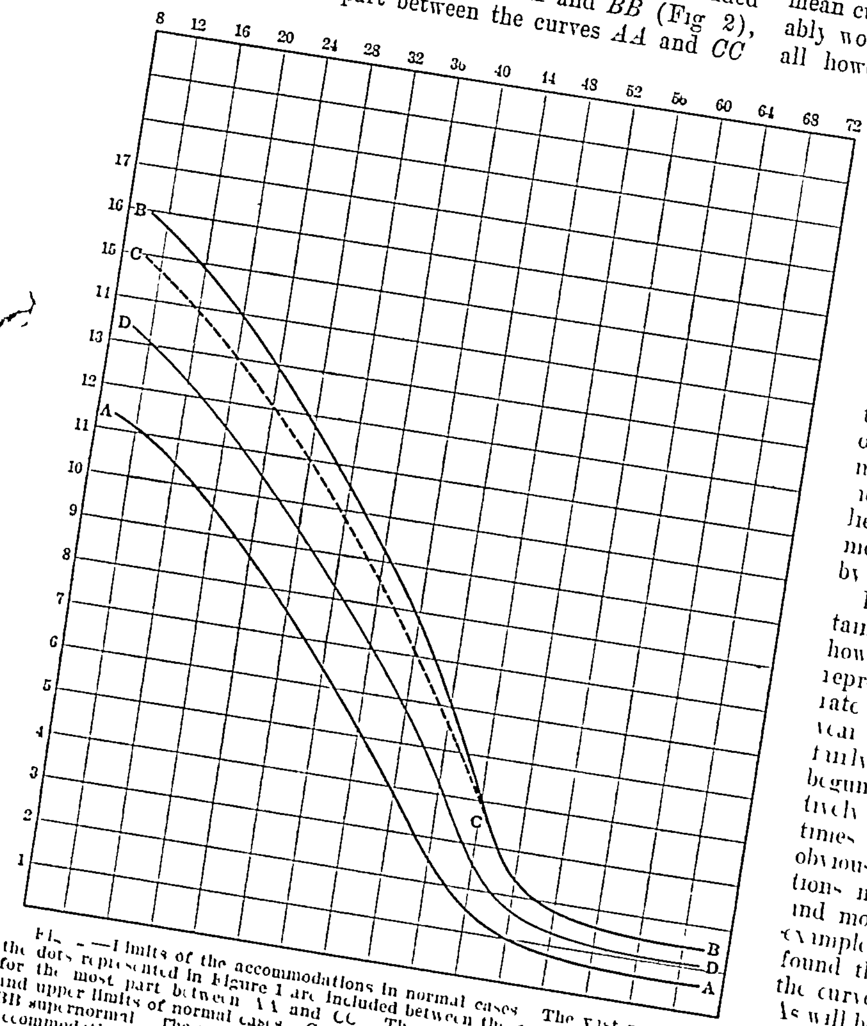

Fig. 2.—Limits of the accommodations in normal cases. The vast majority of the dots represented in Figure 1 are included between the curves AA and BB and for the most part between AA and CC. These therefore represent the lower and upper limits of normal cases. Cases lying below AA are subnormal and above BB supernormal. The rate of descent of the accommodation in persons with high accommodative power is shown in BB and the less rapid descent in those of low accommodative power is shown in AA. DD is the mean curve representing the rate of descent of what may be called an average case.

Line *DD* (Fig. 2) represents what we may call the mean curve of accommodation, inasmuch as it passes in general through the densest portions of the mass of dots and indicates thus the core of the galaxy. The term "mean curve," however, has very little significance. Its position is more or less arbitrary and other observers using the same data as we might doubtless give the mean curve a different placing, although in no case probably would the difference amount to over 0.5 D. After all however, what we wish to know in any given case is whether the accommodation found lies well within the normal limits, i. e., between *AA* and *BB* (or *CC*). Whether it lies close to *DD* or not is comparatively speaking a matter of indifference. Indeed, the chief and perhaps the only significance that attaches to *DD* is that it gives the rate of fall of accommodation, i. e., the recession of the near point, in what may be called the average case. This rate, both in the average and in the extreme cases is shown numerically in Tables 1 and 2 given below. From these tables as well as from Figure 2 it is obvious that an accommodation which normally lies near the upper limit given, i. e., near *BB* will fall off faster, and one that lies near the lower limit *AA* will fall off more slowly than the average, represented by *DD*.

It may be asked how near we are to certainty in these matters. In other words how sure are we that the curves given do represent the normal limits and the normal rate of change of the accommodation from year to year? We think we may say we are fairly sure. When the investigation was begun and the observations were comparatively few the limits found at different times varied widely, and the results were obviously open to suspicion.[5] As observations multiplied, the results became more and more concordant. This is shown for example in Figure 3 where the curves found three years ago are compared with the curves now regarded as best established. As will be seen, the main result of completer investigation has been first to eliminate the sinuosities and irregularities of the previous curve, second to diminish somewhat the upper limit before the age of 25 and lastly to expand both the upper and lower limits after the age of 40. The change last named which is the only one really of importance seems to be quite well substantiated, inasmuch as the number of good observations for the decen-

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3. Especially as regards illumination, the character of the test object, the patient's condition, etc. In all the later series of cases the test object used was my accommodation disk described in the Ophthalmic Record, August, 1909. This consists of an engraved black line 0.15 mm. in diameter bisecting a small white parallelogram which is mounted on a disk of black velvet. To render the patient strictly emmetropic he was supplied with the glass correcting his total refractive error, which glass for patients under 45 was determined with the aid of homatropin. When the near point was either too far or too near to be accurately measured a suitable convex or concave lens was added to the correction and a corresponding addition or deduction made in the finding. For particulars see original paper.

4. The convincing character of the curves AA and BB is heightened if we include a number of cases which I felt bound to reject, yet which can hardly be classed as abnormal. Such for example were cases in which the measurements at different times varied so widely that one could not know just what value to assign to the accommodation. Such too were cases in which the [illegible] taken at any one time were constant but in which [illegible] a year or more later gave higher values, showing that the [illegible] were below the normal of the individuals concerned. [illegible] In both classes of cases were rejected. Yet with [illegible] lay within the limits here assigned and might [illegible] included as representing slightly abnormal [illegible]

5. This particularly [illegible] New York State Journal of Medicine, July, [illegible] and in Tr. [illegible] Ophth. Soc., 1909.

mum between 40 and 50 is particularly large. The normal limits of the accommodation, therefore, in beginning presbyopia are apparently wider than had been supposed. But even in this case, the change, though important, is not great in amount. The other changes are comparatively trifling, and in the case of the mean curve the two sets of observations agree very closely indeed. Moreover, we seem now to have reached the point, where the addition of each hundred cases makes no appreciable difference in the results. Since these results are based on many hundred cases, and on a method consistently carried out for a period of five years with rigorous regard to the conditions that should obtain in such an investigation, and since moreover they have reached a point where they no longer vary as observations multiply, it is believed that they actually represent the normal values.

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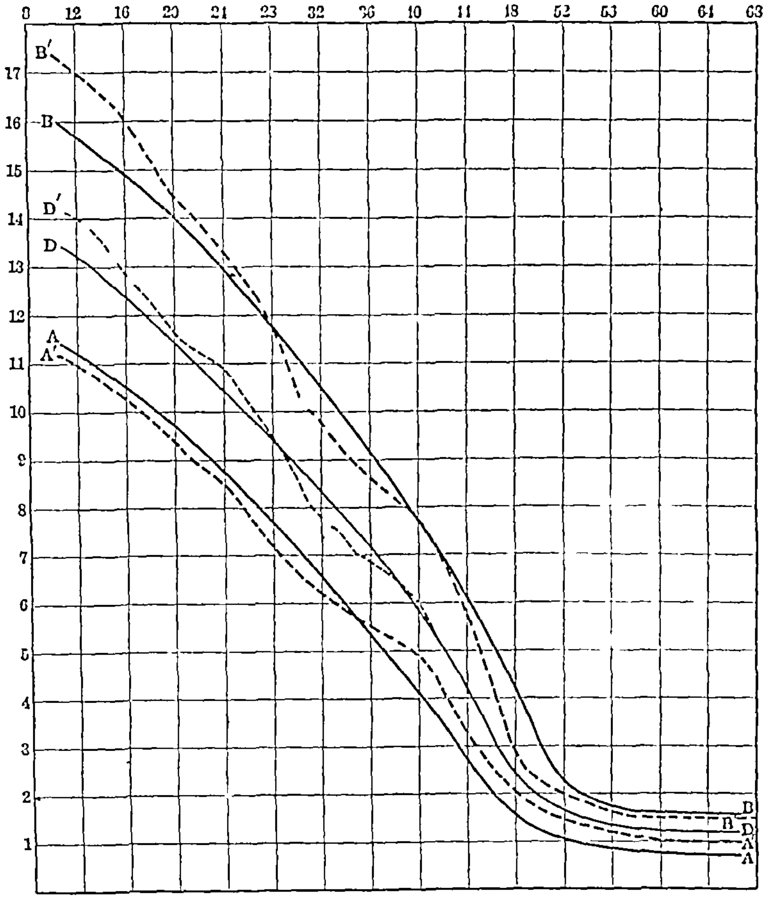

Fig. 3.—Comparison of early and final results. AA, BB and DD as in Figure 2; A'A', B'B' and D'D', corresponding curves found three years ago. Note the more regular course of AA, BB and DD and the fact that in them the upper limit is lower before the age of 25, while after the age of 40 the upper limit is higher and the lower limit lower than previously found.

TABLE 2.—APPROXIMATE VALUES OF ACCOMMODATION AT EACH FOUR-YEAR INTERVAL

Accommodation is given in D (to the nearest 0.25 D), near point being measured from the anterior focus of the eye, i. e., from a point 13 mm. in front of the cornea.

Age	Lower Limit in Normal Cases	Usual Upper Limit
8	11.50	15.50
12	11.00	15.00
16	10.50	14.00
20	9.50	13.00
24	8.50	12.00
28	7.50	11.00
32	6.50	10.00
36	5.25	8.50
40	4.00	7.00
44	2.50	5.50
48	1.50	4.00
52	1.00	2.25
56	0.75	1.75
60	0.75	1.50

ABSTRACT OF DISCUSSION

Dr. S. D. Risley, Philadelphia: I have been impressed by clinical experience with the almost mathematical precision with which we can predict the range of accommodation for any given age in emmetropic eyes, or in eyes in which the ametropia has been corrected and the glasses have been worn for considerable periods of time. Dr. Duane's careful laboratory studies

TABLE 1.—NORMAL VALUES OF THE ACCOMMODATIVE POWER AT ALL AGES FROM 8 TO 68

Accommodation is given in D and tenths, near point being measured from the anterior focus of the eye, i. e., from a point 13 mm. in front of the cornea.

Age	Lower Limit in Normal Cases	Mean Value	Usual Upper Limit	Extreme Upper Limit
8	11.7	13.8	15.4	16.4
9	11.6	13.6	15.2	16.2
10	11.4	13.4	15.0	16.0
11	11.2	13.3	14.9	15.8
12	11.1	13.1	14.7	15.6
13	10.9	12.9	14.5	15.4
14	10.8	12.7	14.3	15.3
15	10.7	12.6	14.1	15.2
16	10.5	12.4	13.9	14.9
17	10.3	12.2	13.7	14.6
18	10.1	11.9	13.5	14.4
19	9.9	11.7	13.2	14.2
20	9.7	11.5	13.0	14.0
21	9.4	11.2	12.8	13.7
22	9.2	10.9	12.6	13.5
23	8.9	10.6	12.3	13.2
24	8.7	10.4	12.1	13.0
25	8.4	10.2	11.8	12.7
26	8.2	9.9	11.6	12.4
27	7.9	9.6	11.3	12.1
28	7.6	9.4	11.1	11.8
29	7.3	9.2	10.7	11.5
30	7.1	8.9	10.4	11.2
31	6.7	8.6	10.2	10.8
32	6.4	8.3	9.9	10.5
33	6.1	8.0	9.6	10.2
34	5.9	7.7	9.2	9.9
35	5.6	7.3	8.9	9.6
36	5.3	7.1	8.6	9.4
37	4.9	6.8	8.2	8.9
38	4.6	6.5	7.9	8.6
39	4.3	6.2	7.6	8.2
40	4.0	5.9	7.2	7.8
41	3.6	5.4	6.8	7.5
42	3.2	5.0	6.4	7.0
43	2.8	4.6	5.9	6.5
44	2.5	4.2	5.5	6.1
45	2.2	3.7	5.2	5.6
46	1.9	3.3	4.8	5.1
47	1.7	2.8	4.3	4.5
48	1.5	2.5	3.9	4.0
49	1.3	2.2	3.4	3.4
50	1.2	2.0	3.0	3.0
51	1.1	1.8	2.6	2.6
52	1.0	1.6	2.3	2.3
53	0.9	1.5	2.1	2.1
54	0.9	1.4	2.0	2.0
55	0.8	1.3	1.9	1.9
56	0.8	1.2	1.8	1.8
57	0.8	1.2	1.7	1.7
58	0.7	1.2	1.7	1.7
59	0.7	1.1	1.6	1.6
60 to 68	0.7	1.1	1.5	1.5

in large numbers of eyes have verified the correctness of our daily findings in the routine work of the clinic and consulting room I find that his paper agrees closely, not only with the early work of Donders but with a series of observations I made to determine the normal near point, in order to verify my studies of the duration of the cycloplegia produced by the several mydriatics The object employed was a series of fine wires stretched across a circle with an illuminated ground glass background For such determination I found it important to confine the study to emmetropic eyes, or to eyes in which correcting glasses had been worn for a long time, since quite different results were reached in eyes which were struggling to maintain binocular vision in the presence of abnormalities of binocular balance or errors of refraction of different degree in the two eyes

DR E E HOLT, Portland, Me It occurred to me when Dr Risley mentioned how constantly the accommodation of the eyes, as found in our daily practice, corresponded to the scientific standard of measurement, that I had been able in quite a number of cases to determine the age of women who declined to give it in years but would give the day and month of the year After determining the ametropia and the accommodation, I would say to such a patient, "You were born on such a day and year, and are, therefore so old" The patient would say, "Why, how did you know my age?" and I would reply, "By examining your eyes '

MORGAGNIAN CATARACT *

BURTON CHANCE, M D

PHILADELPHIA

Morgagnian cataracts are not of very common occurrence and, among the younger generation of surgeons, have excited but little interest Indeed, since 1890, no case has been presented to this Section, I find no report of any in the transactions of the American Ophthalmological Society, and Taylor,[1] in reporting a case before the Ophthalmological Society of the United Kingdom, says that for thirty years past not a single instance had been brought before that society Pathologically, they cannot be rare, and, in the past, my masters spoke of them with interest, as though they had frequently seen them It may be that now they are not common, clinically Perhaps it is that we are consulted earlier than the older men were, so that the cataracts we see are firmer, or more probably, we are not consulted at all by those in whom extreme hypermaturity is present, whose cases we read of in startling headlines in the public prints declaring the cures of cataract by natural processes after the greatest surgeons had insisted that only operations could relieve However this may be, references to them in the past ten years are few in number, and I can recall only four or five instances of hypermature cataracts marked by so great a liquefaction as to characterize them "Morgagnian"

It is therefore with a great deal of enthusiasm that I mention that recently, in the space of six months, I operated on two patients, and I cannot avoid recalling with peculiar interest the attitude of uncertainty and hesitation which certain of my elders manifested toward one of the cases, when I presented it for study before a clinical society

Morgagnian cataracts are usually monocular and, as is most evident, occur in long standing cases, that is one eye becomes cataractous in middle age and the patient becomes reconciled to the inconvenience attending it and does not seek advice until the onset of cataractous symptoms in the other eye Such cataracts sometimes follow serous cyclitis and in some of the cases more or less extensive degenerative changes have taken place in the chorioidoretinal tunics, though this, of course, cannot be seen until after the extraction of the opaque lens Other cases have been those of congenital total cataracts Cataracts, even at birth, may be so disintegrated as to present softening of the cortex with the harder center which has sunk to the bottom of the capsule or they may be completely fluid with the absorption of the imperfect nucleus Such cases can hardly be considered as having ever been mature, on the contrary they have been caused by a failure in the development of the lens, the fibers of which have been replaced by an opaque albuminous fluid Yet clinically, as Treacher Collins[2] pointed out in 1908, they are entirely *comparable to the Morgagnian cataracts* of adult life I have not seen a Morgagnian cataract produced by accidental injuries, or after incomplete needling in the case of complete congenital cataracts

In Morgagnian cataracts in old lenses the cortex liquefies, becomes milky white in appearance and the substance homogeneous In the lower portion there is present a semicircular, dark or brownish shadow cast by the upper half of the dense nucleus which has sunk to the bottom of the lenticular sac The brownish shadow can be seen to change its position as the position of the nucleus is altered by the movements of the head, and, when the pupil is dilated, the difference in the color of the reflex *may readily be noted*—*it is yellowish when the* patient is standing up and milky white when he is lying down It is not always possible to distinguish the nucleus, because its outlines may be hidden by the opaque cortical, which, as is well known can be denser and more impervious to light than a hardened lens

It may be of interest to consider the genesis of the Morgagnian cataract It comprises the metamorphosis of a mature cataract into a state of liquefaction, and it is probable that the changes are truly inflammatory in type The epithelium proliferates and we have a thickening of the capsule which retains the water of disintegration in which the cortical mass is dissolved, or, the *cortical lens substance is gradually absorbed* and *is* partially replaced by fluid to such an extent that the nucleus moves about in it and gravitates to the lowest point within the capsular sac The fluid cortical substance may remain yellowish or become entirely opaque, whitish or murky The nucleus remains unaltered or shows only an eroded surface due to a slight absorption of its substance, and it may contain Morgagnian droplets and cholesterin crystals, as in Claiborne's[3] case and in my own The capsule may rupture and allow the nucleus to escape through the rent into the anterior chamber, as happened in Ewing's[4] case

It is rather curious that Morgagni[5] himself attributed the formation of cataract to a *process the very reverse of* this He believed that a "humor" existed in the healthy state, between the capsule and lens and that it was this humor which became opaque and formed the impediment to vision, or "verily that the secretion of this humor having been stopped, the crystalline lens became dry and opaque"

There are many ways in which the obstruction caused by cataract may be removed by the processes of Nature If the patient lives long enough the lens may so far liquefy and become absorbed as to leave only a small remnant within the capsule, or the capsule itself may be absorbed Sometimes the lens may be dislocated and without harm sink into the vitreous humor, thus effecting the restoration of sight to ardent devotees on pilgrimage to famous curative shrines In my notes of unusual cases observed while resident at the Wills Hospital in 1894, I find one relating to the extraction of a hypermature cataract

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* *Read in the Section on Ophthalmology of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City June 1912*

[1] Taylor Tr Ophth Soc. U Kingdom xxxi 46.

[2] Collins E. T Developmental Deformities of the Crystalline Lens THE JOURNAL A M A Sept 26 1908 p 1051

[3] Claiborne Arch Ophth [illegible] p. 517

[4] Ewing Am Jour Ophth [illegible]

[5] Morgagni Quoted from Dix and Gould [illegible]

> Surgeon R when about to lay down his knife at the completion of the incision, was startled to see the lens ejected from the eye through the wound and light on the pillow some distance from the patient's head The lens resembled a large white pearl, but after a few oscillations the capsule ruptured and a milky fluid ran out leaving a dense nucleus within the folds of the capsule This extraordinary occurrence was followed by an uneventful recovery "

Sometimes the fluid is completely transparent and the nucleus may fall below the pupil sufficiently to allow the vision to be corrected by an appropriate lens, as in a case reported by von Reuss[6] In others, the capsule has remained more or less transparent, so that the sight has even improved In a case reported by Calderaro,[7] the absorptive processes must have progressed far, for the fluid surrounding the nucleus was entirely transparent and, on microscopic examination, the lining cells of the capsule were completely lacking

REPORT OF CASES

The cases I desire to record are as follows

Case 1 —The patient, a woman, aged 73, of unusual vivacity a native of Ireland, but long resident in this country, became suddenly blind in her right eye at the age of 55, but fearing that she had a cataract did not consult an oculist In October, 1910, when the sight began to fail in the other eye, she came to me She had been in perfect health for one of her years, with jet black hair and was quite self sustaining She had never had any inflammatory disease in either eye, the visual acuity of the left eye equaled 5/10, but that of the right was equal to light perception only

The corneas and irises were healthy but the lenses were cataractous The right lens was particularly remarkable The fundus was obscured by a dense milky white opacity occupying the pupillary space It was granular and without formal structure, it seemed to be solid or like a fluid completely retained by the capsule The globe was at normal tension, the anterior chamber somewhat shallower than that of its fellow When the pupil was dilated the crystalline lens presented a striking picture In the lower quarter lay a deep mahogany colored body, thought to be the nucleus, which slowly changed its position, but in a definite way The shape was a flattened ellipse which maintained a more or less vertical balance, and would float upward until the convex border appeared well within the pupillary space The nucleus had a sharply outlined contour, it was very much smaller than any senile nucleus I had ever seen, and in its substance it contained a number of bubbles or Morgagnian globules

When I exhibited the patient at the meeting of the Wills Hospital Society, much interest was taken in her case and elements of uncertainty in the diagnosis were discussed This seemed rather extraordinary, for in my private study of the case, the appearance was exactly like that which Fuchs so masterfully describes in his text book[8] While the patient maintained the erect posture, the nucleus fell forward in the sac, yet was entirely surrounded by the fluid, the density of which prevented easy movement and held the nucleus upright This appearance, after a few moments' steadying, was quite changed by rapid movements of the head and of the globe The nucleus would sink below the pupil border so that the changes were quite misleading, so much so that one distinguished visitor did not hesitate to regard the case as one of "black cataract," dependent on deep seated inflammatory disease It was determined, however, to extract the lens On the day of the operation the patient had been kept in bed for several hours It is needless to say that there was no sign of the nucleus when I approached her bedside It reappeared when she was made to sit up for a few moments

During the incision the tension of the globe fell, so that it was not possible to make a perfect linear incision, the knife was brought out too high to enable me to make a satisfactory iridectomy It was my intention to attempt the extraction of the entire capsulary body, and a loop or vectis was inserted well behind the cyst like body which flopped and wobbled, so that it was difficult to engage it and just as the cyst entered the wound, the capsule ruptured and the anterior chamber was flooded with the opaque fluid After this collapse it was easy to reintroduce the loop and to engage and withdraw the nucleus but as the hyaloid had been lacerated no further attempt was made to withdraw the capsule A thin film of vitreous and a rather large air bubble mixed with the cortical fluid The toilet was performed without further accident and atropin was instilled A roller bandage was applied I was assisted in the operation by Dr William Zentmayer, to whose kindly help I owe my success The patient behaved with the utmost composure throughout the rather lengthy ordeal, but later she became restless and quite wilful, with lack of control In spite of this, however, in two days the wound became firmly closed On the ninth day there began a sharp attack of iridocyclitis which lasted for four weeks, accompanied by headaches and deep pain in the globe It is not at all unlikely that the iridocyclitis was caused by the swelling of some of the cortical debris which was left behind in the aqueous chamber, although a large quantity gushed out at the time of the operation Notwithstanding these symptoms the aqueous in time became perfectly clear and at the end of the sixth week the patient returned to her home The eye was then quiet, there was a small coloboma, the pupil being spanned by a dense capsular sheet studded with brownish pigment masses, and in the upper outer angle there was a circular rent The patient returned to the hospital as I was leaving for a voyage to Europe and Dr Schwenk incised the capsule and later extracted the other cataract with most favorable results Considering the length of time since the cataract had begun to form and the degree of dissolution of the cortex the nucleus showed a marked resistance to the processes of disintegration It measured approximately 3 by 5 mm, was of a most pronounced lenticular form of a dark mahogany color and exceedingly dense and firm, except for two or three vacuoles rather deep in the substance On section the fibers were quite condensed except here and there where they were separated, the intervening spaces being filled with a granular coagulated fluid

Case 2 —The patient was a healthy and florid woman of 60, of large frame and the general physique of the natives of Western Pennsylvania She had had symptoms of cataract for fifteen years The history is quite confused For reasons which she could not recall, she had consulted an irregular practitioner, who, from time to time, at each of her visits to his office, did what he told her was "needling" A month or so before she consulted me, March, 1911, her left eye had been painfully inflamed The sight of the right eye had always been good, but that of the left gave her only shadows The left globe was deeply congested in the ciliary and scleral regions, yet the cornea was clear The iris was somewhat injected but presenting in the pupil was a shriveled lens which seemed to have been luxated on the vertical meridian so that the circumferential edge projected through the pupil The lens was chalky in appearance and showed numerous cholesteric crystals, so that it reminded one of a small, pale opal The tension of the globe was not increased

The patient was admitted to the Wills Hospital through the kindness of Dr Schwenk, and was operated on early in the afternoon The incision was begun in the usual manner, but when I was about to make the counter puncture, the lens interfered with the passage of the knife Rather than cause a depression of the lens, I let the blade rest on the lens and made a new deflected opening rather high on the cornea. The incision was very clean. The lens stood wedged between the upper and lower pillars of the iris. An iridectomy was attempted, but owing to the lack of support of the iris a small, unsatisfactory coloboma resulted. A narrow loop was inserted and the lens was caught in its spread, and then cautiously removed, without rupture of the hyaloid or other accident. Here I was assisted by Dr. Schwenk.

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[6] v Reuss Ztschr f Augenh xxi 209

[7] Calderaro Clin Oculistica March, 1909

[8] Fuchs Text Book of Ophthalmology Ed 3 p 447 (Duane)

The patient was of a most vigorous type with great masses of golden hair. She stated that the only discomfort she had during the operation was a sharp pain in the teeth of the left side. On the third day the wound had healed, though there was some chemosis. In the succeeding week the patient was a little light headed and flighty. Striped keratitis developed, and the globe was so much congested that ice was used. The patient was discharged after eleven days in the hospital.

The next day it was possible to view the fundus. The eye was entirely aphakic. There were shreds in the vitreous, and the chorioid showed rather large areas of atrophy, especially, and fortunately, in the nasal region. Three weeks after the operation with a + 8 D vision was 4/21. Three months later with a + 10 + 2.5 axis 135 vision was 5/9. The right eye was nearly E and was perfectly healthy. When I last examined the patient there were but few vitreous shreds and all was satisfactory and comfortable. She had taken a long course of belladonna and mercury in minute doses. The nucleus was quite irregular in outline and showed evidences of active disintegration. It measured 4 by 5 mm in the main diameters. The shriveled capsule was adherent to it. Much was lost by dissolution in the preserving fluid as the specimen was mislaid for several months. The particles of the capsule adherent show the presence of epithelial cells. The external surface of the nucleus is eroded and quite a broad zone is vacuolated. Some of the fibers are separated by coagulation spaces, others are swollen and present large cells, while still others are convoluted and opaque. Here and there are spherical spaces containing granules, and diagonally across the quite compact deepest layers are sharply angular slits or fissures which are highly refracting and empty. The specimens were preserved and cut for me by Dr. Nelson Brinkerhoff, pathologist of the Wills Hospital.

In the treatment of Morgagnian cataracts we must try to extract them within the capsule. Certainly, an iridectomy must be performed, and, in selected cases in which deliberation may be needful, a preliminary iridectomy will yield even better results. Lens spoons or wire loops of dimensions sufficient to engage the nucleus within their span should be used. These should be introduced well behind the lens, though held somewhat vertically, with the surgeon's mind, so to speak, occupied solely on the loop with the thought that it must be transported through an arc about the short axis of the instrument. With it the lens is pushed up against the cornea, then with a scoop pressed against the external surface the lens is made to glide well on to the loop and it is then easily withdrawn, counter-pressure being made externally with the scoop until the lens is removed. A skilled assistant is required in this operation to manipulate the external instrument while the operator steadies the globe with the fixation forceps in one hand and the loop or spoon in the other.

It is important to observe the behavior of the escaping cortical fluid — a granular milky fluid, like fine starch grains—as it may swell through the action of the aqueous humor and if it should not all be dissipated by the time of the closure of the wound, it may excite ciliary inflammation and cause an increase of tension.

In the treatment of congenital fluid cataracts of the Morgagnian type, if there be a pouring out of the milky fluid into the anterior chamber the aqueous should be completely evacuated at once to prevent the swelling and increase of tension, just as in senile cases.

From my own rather limited experience and a much wider observation, it would seem wise not to allow hypermaturity to extend as far as liquefaction. In the very commencement where a cataract becomes whitish or milky, we have ground to suspect that the exterior layers are fluid or semifluid. The weakness of the zonula favors rupture of the hyaloid with the consequent escape of vitreous. It is by no means easy to engage a floating nucleus, and traumatism occasioned by one's efforts to extract the nucleus may hinder the healing of the enfeebled globe. It is therefore best to encourage operation in the period of maturity and even earlier. The risks at this stage are less, all things being equal, than later. It is more than likely that the consistency of the vitreous may have become so disturbed when a cataract is overripe that the escape of it then will prove of greater moment than when even a large bead presents during the extraction of a hard cataract. Neither must the possibility of the rupture of the capsule with the dislocation of the nucleus into the anterior chamber or on to the ciliary body, as happened in the first of my cases, be overlooked. In my second case the pressure of the hardened nucleus on this region excited such cyclitis that I am certain the chorioidoretinal inflammation had been greatly increased thereby. Sooner or later the fluid may become absorbed or calcareous degenerative changes result, or the thickened impervious capsule may remain. Either condition would be difficult to deal with.

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ABSTRACT OF DISCUSSION

Dr. E. B. Heckel, Pittsburgh: I cannot but feel that the existence of this type of cataract is a reflection on modern ophthalmology. The question practically resolves itself into whether a uniocular, so-called senile cataract with the other eye perfectly normal should be operated on or not. Many advise against operation in this condition and consequently, time has been given for a complete degeneration of the lens mass and the formation of a morgagnian cataract. A so-called senile cataract, as we well know, is not a necessary concomitant of old age or an evidence of senility, but the result of some distinct metabolic changes which no doubt are not limited to the changes in the lens itself but perhaps manifest themselves only in the loss of transparency of the lens mass, and which may be accelerated if the degenerated lens mass is permitted to remain in the eye. A uniocular so-called senile cataract should then be removed as soon as complete, even if the other eye is perfectly negative and has normal vision. The opaque lens mass should be removed not only to prevent a complete degeneration and the formation of a morgagnian cataract but also to prevent possible destructive changes to the eye itself by its presence. The opaque lens should also be removed to give the patient better vision; its removal certainly does enlarge the visual field, and although a full correction of the resulting aphakic eye may give perfectly normal vision it is usually wise not to order it, as it rarely results in a harmonious singular binocular vision, so that a partial correction usually results in perfect comfort to the patient.

I do not agree with Dr. Chance as to the choice of operation for the removal of a morgagnian cataract. Operation can be done either with or without an iridectomy, but should be proceeded with calmly and deliberately. The excessive use of cocain should be carefully avoided on account of its tendency to lower the tension of the eyeball and thus reduce the normal resistance or *vis a tergo* of the vitreous, and thereby render the delivery of the nucleus and the proper toilet of the eye more difficult. The use of an intracameral syringe to free completely the anterior chamber of [illegible] is decidedly useful in this particular operation.

Dr. Lucien Howe, Buffalo, N. Y.: I [illegible], by this me[illegible] of [illegible] I have [illegible] patient [illegible] stomach causing the nucleus to fall forward so that it can be easily extracted I succeeded in removing the foreign body which tended otherwise to fall back into the vitreous

Dr C A Clapp, Baltimore What does Dr Chance mean when he says that the metamorphosis to a liquid state is probably inflammatory in type? I can hardly imagine a tissue of the character of the lens as being inflamed with cardinal symptoms of heat, pain and redness Is there any change in the percentage of insoluble albuminoid in these cases? I believe that this process is a true autolysis or self digestion of the lens substance

Dr G C Savage, Nashville, Tenn The Smith capsulotomy can be properly applied in cases of morgagnian cataract or in cases supposed to be morgagnian If the cataract is morgagnian, the milky liquid will fill the aqueous chamber the moment the capsulotomy is done After removing the knife needle, the head of the patient should be tilted forward so as to throw the nucleus into the aqueous chamber, where it would gravitate to the bottom The patient now being allowed to assume a semi erect position on the operating chair, a small incision could be made at the lower margin of the cornea, through which at once would escape the now milky aqueous, and through which could be removed easily the nucleus of the lens by pressure or spoon After the escape of the milky aqueous, should the nucleus not be in the anterior chamber, the head could be tilted forward sufficiently to displace it into the chamber, whence it could be removed after replacing the patient in the semireclining posture Should the cataract prove not to be morgagnian, although appearing to be such the extraction could be made later in the way advised by Homer Smith

Dr. Burton Chance, Philadelphia It is not at all desirable to allow cataracts to become hypermature, I offered my cases only because of the rarity of morgagnian cataracts in modern practice I believe that it is good practice to operate on a cataract even when the fellow lens is not mature in support of this dictum I can cite the case of a railroad engineer recently operated on with good results I cannot give the chemical changes in the decomposed lens substance though the débris usually excites marked reaction when left in the aqueous chamber These cases are not ideal for a capsular extraction, although the effort should be made to remove the flaccid lenticular body at once and completely The suggestion that the position of the patient should be changed during the progress of the operation is a valuable one, yet, in the cases here cited, the hyaloid membranes were so tender that, without doubt rupture with serious escape would have followed had such a maneuver been attempted

PEMPHIGUS OF THE CONJUNCTIVA

REPORT OF A CASE WITH MICROSCOPIC FINDINGS

WALTER BAER WEIDLER, M D
NEW YORK

Pemphigus of the conjunctiva is one of the grave diseases of the eye, and was recognized and diagnosed as such as early as 1800 Before this time it was classified with the urticarias and scabies, involving the face and eyes, many others considered it a xerosis of the conjunctiva When this condition affects the eyes it is usually bilateral, although often unequal in the degree of severity

There does not seem to be any constant relation between the duration of the skin affection and the development of the eye lesions Pemphigus may affect the conjunctiva primarily, but this is rather rare, and in some of the cases so reported the lesions of the skin or mucous membranes may have been overlooked

The course of the disease is usually very slow, extending over a period of years Samelsohn[1] mentions a case that lasted over seven years, with little or no atrophy of the conjunctiva following, while, on the contrary, in Silcock's[2] case the one eye was completely destroyed in six weeks and the other one seriously damaged There is no definite course or duration in pemphigus of the conjunctiva

Crocker,[3] in speaking of pemphigus of the skin mentions this disease as rare, occurring once in 500 cases in the skin dispensaries of England and America It is more often seen in England and continental Europe There are very many different forms of pemphigus, but perhaps pemphigus chronicus is most frequently seen Typical cases of this peculiar form show oval bullæ, with tense walls and translucent contents usually bilateral, being most abundant on the face and trunk, often appearing in crops from ¼ to 1 inch in diameter with a tendency to coalesce The duration of each bulla is a few days, but the disease may last indefinitely In rare instances the disease may be localized in the conjunctiva Pemphigus of the mucous membranes may appear in all of its forms, affecting the pharynx, larynx nose and stomach

In regard to the etiology of the disease, sex and heredity seem to be of little importance Crocker inclines to the nervous hypothesis as an explanation for the eruption Just what this defect is due to we are not as yet certain, but the vasomotor centers may be the root of the trouble, or, as Schwimmers concludes, it may be a trophoneurosis The latest theory that has been advanced is that the toxins affect the nerve endings

REPORT OF CASE

Patient—Mr L L, aged 70, Russian, said that he had never had any trouble with his eyes until six months ago, and at that time he was able to read the newspaper with glasses He was first seen by me at the Manhattan Eye and Ear Hospital, Oct 3 1910

Examination—Right eye Vision Patient counted fingers at 3 feet The iris was brown and reacted very sluggishly to light tension was normal The edges of the lids were covered with a dried secretion, yellowish in color, which matted the lids together The lids were thick and shrunken There was total symblepharon (the lids united to the eyeball to their edges) The opening between the lids was about 8 mm The bulbar conjunctiva was thick and thrown in folds over the cornea A small portion of the cornea was visible. The eye presented somewhat the appearance of an old trachoma, with atrophy of the conjunctiva

Left eye Vision 20/200 The pupil was 3 mm in diameter, the iris was brown and reacted to light, accommodation and convergence, tension was normal There was the same matting of the edges of the lids The symblepharon was very slight and deeply placed in the culdesac At the limbus of the cornea there were several small whitish areas which when gently rubbed with an applicator, bled freely The conjunctiva was red and swollen, with the appearance of edema at places The corneoscleral margin showed a number of small bleb like formations of a pearly white color The rest of the cornea was clear

Oct 20, 1910 The condition of the right eye was unchanged, except that the symblepharon had contracted more and the opening between the lids was smaller The culdesac of the left eye seemed to be more shallow, movement of the lids less free and it was almost impossible to evert the upper lid There was always free bleeding of the conjunctiva on the slightest attempt to open the eyelids wide

The shrinking grew steadily worse in the right eye until it was impossible to separate the lids The shape of the eyeball seemed to be preserved as far as could be determined by palpation There was a curious swelling in the upper lid, directly under the skin, which may have been an enlargement of the lacrimal gland There was also edema of the upper lid, which lasted for about two weeks

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[1] Samelsohn Ber d ophth Gesellsch 1878

[2] Silcock Tr Ophth Soc U Kingdom 1897, p 1

[3] Crocker Text Book on Dermatology

The bulbar conjunctiva presented spots of necrosis in the left eye which were white and bled very easily on the slightest attempt to make any examination of the eye After bleeding, there was immediate ulceration and formation of synechia between the conjunctiva of the eye and the lids The bulbar conjunctiva was slowly extending over the cornea The small areas of necrosis with the ulceration and free bleeding, followed by the formation of synechia, and later by cicatrization and contraction, and finally, by symblepharon, which gradually became more and more complete, indicated the steady progress of the disease The secretion of tears had been absent for about a week The cornea showed small ulcer formations in the upper half, and the patient had noticed rapid loss of vision during the last week Two weeks later the ulceration of the cornea was complete in the upper half, and the upper lid was tightly attached to the surface of the cornea The vision was fingers at 6 inches The eye was kept closed nearly all of the time and the patient complained of great pain, which was worse at night

Frequent examinations of the urine were always negative A von Pirquet vaccination was made, using the crude tuberculin in solutions of 10 and 50 per cent, but this gave no evidence of tuberculous foci in the body The Wassermann reaction was also negative

The pain and general discomfort increased with the gradual destruction of the eyes The condition of the nose and throat was much worse and breathing became difficult There was free bleeding from the nose whenever the patient blew his nose or tried to remove the crusts and scales He was unable to get about by himself, and his general health and strength had been rapidly failing, and on examination of the body three well formed bullæ were found over the abdominal wall The progress of the disease in the left eye was very rapid, involving twelve weeks in all to complete the destruction

The patient was examined by Dr Jonathan Wright, who reported as follows "In the nose the whole of the visible walls of the cavity is covered by what looks to be a dirty, brownish, moist, shining membrane, but which is an exudate evidently closely incorporated with the subjacent mucosa It does not bleed and cannot be stripped off There is evidently associated with the process a degree of fibrosis, which is manifested first, by the firmness with which the exudate or surface structure is bound to the subjacent parts, second, by the bloodlessness of the surface, and third, by the fact that at the back of the vestibule where the internal nasal chambers proper and their mucous surfaces begin, the introitus is much narrowed by a fibrous contraction With this fibrosis there is no appreciable amount of deep infiltration, no true ulceration, no necrosis of soft tissue or of bone There is a somewhat analogous lesion of the conjunctiva. There is no other lesion or history pointing to syphilis It is not the clinical picture of membranous rhinitis diphtheria, syphilis, or rhinoscleroma The eye lesion resembles the blebs one sees in acute herpes or pemphigus of the throat. It resembles such a lesion as I have once seen accompanying a similar one of an acute nature in the nose and throat, which I believed was pemphigus"

The first case of pemphigus of the conjunctiva was reported by Wichmann in 1800, and the next one to be reported was that of White-Cooper,[4] London, in 1858 Later, Stellwag[5] described a condition of the conjunctiva which he called "syndesmitis degenerativa" Kries[6] and von Graefe, speaking of this same affection, called it "essential shrinking of the conjunctiva" They thought that this condition was analogous to pemphigus, and this opinion is accepted by many to day

Pemphigus of the conjunctiva has been classed under four separate headings

1 Cases with blebs on the skin
2 Those with blebs on the mucous membranes
3 Those with blebs on the conjunctiva alone
4 Essential shrinking only

Von Graefe has pointed out that there is an essential shrinking or atrophy of the conjunctiva which has not been preceded by hypertrophy Many writers assert that this shrinking is really due to the formation of vesicles and bullæ on the conjunctiva, this theory is supported by Pfluger, Sattler and Gelpe[7] The vesicles and bullæ were seen in the late stage of the case reported in this paper The appearance of bullæ is rather the exception in the cases that have been reported, and this may be explained by the fact that the epithelium of the conjunctiva is so soft and delicate that it cannot, like the skin, be lifted up in broad layers by the serous exudation but ruptures and is thrown off in the form of shreds with the areas of necrosis following

In pemphigus affecting the eye we find that the conjunctiva is usually attacked first It is swollen and red, and one sees spots of coagulation necrosis The discharge is free and the edges of the lids are usually glued together, and this recurs in a very short time after they have been carefully cleansed There is some slight degree of photophobia and lacrimation, the latter being more marked in the early stage of the disease, but after the shrinking has begun the flow of tears is very much reduced and in the very late stage they are entirely absent The inflammatory reaction extends into the subconjunctival tissues and we have the formation of new blood-vessels which bleed at the slightest effort to examine the culdesac These inflammatory changes are not limited to the subconjunctival tissue, at times the tarsal plate may also be thickened and misshapen The cornea is never attacked primarily and is affected only in the later stages of the disease In some cases that have been reported there has been ulceration of the cornea, with perforation and prolapse of the lens and vitreous At the very last stage of this disease we may find buphthalmia, staphyloma, panophthalmitis and phthisis bulbi

In Pergens'[8] monograph on pemphigus of the conjunctiva he gives full records of 133 cases The ages of the patients varied from infancy to 80 years As a rule, there is no previous history that is of any assistance in making a diagnosis The condition usually begins in one eye and involves the other later on As regards the frequency of this disease, it is of interest to note that Steffen has seen 1 case in 84,000, Cohn, 1 in 50 000 Scholer, 1 in 50 000 Horner, 3 in 70,000, Baumler 7 in 97,000, Pergens, 2 in 22,000, Franke, 5 in 15 000

Since the publication of Pergens' report in 1901 I have found the records of the following additional cases

Salva's[9] Case.—Woman aged 63 The disease began in 1900 First appeared in the eyes, later in the mouth and throat and then on the skin The conjunctiva showed small round ulcerations which stained with fluorescein and methylene blue The culdesac became smaller and smaller there were cicatricial bands symblepharon and trichiasis The cornea was ulcerated, pannus crassus and blindness resulted in 1902

Johnson's[10] Case.—Woman, aged 53 The trouble followed nervous shock, eye began to give discomfort She was first seen when there were adhesions between the lower lid and eyeball The conjunctiva was dry and the cornea clear The lens was cataractous The soft palate pharynx and epiglottis presented eruptions of pemphigus Antisyphilitic treatment was of no avail The eye was lost and the conjunctiva was replaced by a hard, dry leathery tissue

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[4] White Cooper Roy Lond Ophth Hosp Rep 1858 i
[5] Stellwag Lehrb f Augenh 1870 p 413
[6] Kries Arch f Augenh, 1878.
[7] Gelpe Klin Monatsbl f [illegible] xxi
[8] Pergens Pemphigus des [illegible] iii
[9] Salva La Clinique Op [illegible]
[10] Johnson R. Jour L [illegible]

COPPEZ'S[11] CASE.—Woman, aged 23, with pemphigus of the conjunctiva, gums, cheek and uvula. Symblepharon formed and the lower two thirds of the cornea became opaque.

KOERBER'S[12] CASE.—Pemphigus of the palate and glans penis. The lower culdesac was narrowed and attached to the eye by bands. Both corneas were clear. Culture showed diplococcus.

BROWN'S[13] CASE.—Woman, aged 18. Blebs were seen on the cornea. Patient died one year and a half after the first eye symptoms were noted.

ANDERSON'S[14] CASE.—Woman, aged 20. There had been acute pemphigus foliaceus since August, 1903. Conjunctiva and facial manifestations were seen in November. The skin and mucous membranes showed remains of the vesicles. They were seen in the culdesac, but no mention is made of any symblepharon formation.

NETTLESHIP'S[15] CASE.—Boy, aged 8, with symblepharon and scarring of four eyelids, six months in duration, no recurrence in four years.

OGILVY'S[16] CASE.—The patient was a farmer. The first attack lasted six weeks. The eyes were then quiet for six weeks. A second attack followed at this time, the cornea became opaque and the conjunctiva became shrunken with ectropion. Lanolin was used locally.

BANE'S[17] CASE.—The patient was under observation for two years. There was ectropion of the lower lid and cicatricial contraction of the conjunctiva, and in the middle third a symblepharon was forming. A conjunctival flap failed to check the progress of the disease. A portion of conjunctiva removed from the lower culdesac was examined by Todd, who reported that the specimen consisted of cicatricial granulation tissue.

SHERMAN'S[18] CASE.—Man, aged 68. Patient had had eye trouble for ten weeks. There was some slight discharge; the conjunctiva was slightly thickened in the lower lid. There were several areas of denudations and the culdesac was shallow. The condition progressed. Treatment: weak solutions of silver nitrate to lids and arsenic internally.

ADAMS'[19] CASE.—Woman, aged 57. There was a free eruption and ulceration of the pharynx besides the conjunctival manifestation. Treatment consisted in the use of arsenic, atoxyl and fibrolysin. Transplantation in the culdesac was tried. The case ended fatally through rupture of pharyngeal eruptions.

QUINT'S[20] CASE.—Patient, aged 16, had typical eruptions of pemphigus on the conjunctiva. There was a complete symblepharon in the left eye and partial in the right. The mucous membrane of the nose and throat presented similar eruptions.

SHUMWAY'S[21] CASE.—Man, aged 10 (?). Besides the conjunctival eruption there was a general involvement of the skin and mucous membranes, broad symblepharon involving the inner third of the lower lid and a gradual extension of opaque tissue over the cornea. Bullæ were noted during the progress of the disease. No operation was attempted. The patient was under treatment for seven months.

WOLLNER'S[22] CASE.—The eruption was localized to the conjunctiva. The patient was under observation for three years.

LANDOLT'S[23] CASE.—Man, aged 41. Previous history of trachoma (?). Left eye was completely involved and the right partially. Three years after onset there was total symblepharon in the right eye with xerosis, and only slight perception of light. Transplantation of skin from face and lids with good results, lasting four years. Left eye was enucleated later because of discomfort.

PATHOLOGY

The pathology of this disease is still obscure. Sattler[24] reports the microscopic findings in one case. He observed that the swelling of the conjunctiva bulbi was not due to the infiltration of the conjunctiva with lymphoid cells, but partly to a great swelling of the connective tissue bundles, and partly to the expansion of the fissure spaces which were filled with liquid. The subepithelial layer of the conjunctiva bulbi formed a special modified membrane about 10 microns broad, more turbid than the rest of the tissue, being almost opaque and running parallel with the surface of the conjunctiva and covering the greater part of the cornea. This subepithelial turbid layer might easily be mistaken at first sight for the epithelium itself. The entire stroma of this layer was pervaded by granular bodies, which did not stain with Bismarck brown or hematoxylin. The blood-vessels of the conjunctiva were numerous and much congested. They were not, however, apparent on superficial view of the conjunctiva, being concealed by the condition of the epithelium. This epithelium had lost totally its normal character. From the deepest layers to the most superficial it consisted of horny cells. It was 30 microns thick and separated easily from the underlying conjunctiva.

Baumler[25] reports a case and gives about the same findings except that he mentions a hypertrophy and a papillary formation of the epithelium.

Collins[26] has made a contribution to our knowledge of this disease by reporting the macroscopic and microscopic findings of two cases of pemphigus of the conjunctiva. In the first case he found from the microscopic study that the cornea showed a great convexity and that on the anterior surface of the cornea there was a layer of tissue quite different from the normal epithelium. The iris was atrophied and attached to the posterior surface of the cornea. The lens was shrunken and adherent to the cornea. The vitreous fluid and retina were *in situ*. There was cupping of the optic nerve head. Microscopically viewed, he found the epithelial layer of the cornea thickened and a number of finger-like processes dipping down into the fibrous layer of the cornea, several areas of round-cell infiltration and a number of new blood-vessels. Descemet's membrane was absent in places. In the second case the findings were very much the same.

Microscopic examination of a small portion of the conjunctiva excised from the lower culdesac of the right eye of my case revealed the following: The specimen was hardened in formaldehyd solution and the gradual increasing alcohols, and stained in hematoxylin and eosin. The outer portion of the specimen was made up of round cells in great abundance and blood-vessels, making a partial capsule around the central fibrinous material. In the outer edge of the specimen were seen necrotic changes in the cellular proliferation. This outer limiting edge showed some flat cells and some tendency to hornification. There was great invasion of leukocytes throughout, more or less centralized in spots. At places eosinophils were seen. There was a most remarkable increase of blood-vessels; these should more properly be called blood paths, as they did not have well formed vessel walls. Some of the larger ones had a well formed wall of cells without the formation of the different coats. These blood paths were well filled with red blood corpuscles. The leukocytes, which made up the greater portion of the section, presented all the different stages of cell division. In the center of the section there was a mass which took the eosin stain only and consisted of red corpuscles and fibrin. This was the hemorrhagic portion of the specimen and was the result of the dissection of the tissue from the culdesac. A few leukocytes could also be seen in this hemorrhagic area. There was no attempt to form any connective tissue or any new form of specialized tissue growth. The polymorphonuclear leukocytes predominated.

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11 Coppez: Bull. de la Soc. Belg. d'Ophth., 1905.
12 Koerber: Centralbl. f. Augenh., 1905.
13 Brown: Ann. Ophth., 1904, xiii, 535.
14 Anderson: Tr. Ophth. Soc., 1904, p. 19.
15 Nettleship: Tr. Ophth. Soc., 1904, p. 22.
16 Ogilvy: Arch. f. Ophth., 1905, p. 277.
17 Bane: Ann. Ophth., 1908, p. 405.
18 Sherman: Arch. f. Ophth., 1909, p. 140.
19 Adams: Berl. Ophth. Gesellsch., 1909.
20 Quint: Klin. Monatsbl. f. Augenh., 1909.
21 Shumway: Ann. Ophth., 1910.
22 Wollner: Klin. Monatsbl. f. Augenh., 1911.
23 Landolt: Arch. d'Ophth., 1910, xxx, 337.
24 Sattler: Quoted by Morris and Robert in Brit. Jour. Dermat., 1888, p. 180.
25 Baumler: Zeh. Klin. Monatsbl. f. Augenh., 1885, xxiii, 337.
26 Collins: Tr. Ophth. Soc. U. Kingdom, 1890, p. 62.

BACTERIOLOGY

Considerable work has been done along bacteriologic lines of study of pemphigus of the conjunctiva. Elaborate studies have been made of the secretions and discharges found in eyes so affected, but no real importance can be attached to the results.

Gelpe found in a case reported in 1885, the presence of micrococci, diplococci, and on making a culture of another case, he was able to show streptococci. Sachsalber[27] later found the presence of the diplococcus, the streptococcus, tetragenus, and comma vibrans. Bellecontre[28] demonstrated streptococci and staphylococci, and Franke,[29] from a culture, found the pseudodiphtheritic bacillus and the staphylococcus.

Lipschutz,[30] from his microscopic studies, advances two theories in regard to the etiology of this disease, the neuropathic and the bacterial or parasitic. By some investigators the contents of the blisters or vesicles have been found sterile, but others have found that they contain strepto- and staphylococci. Lipschutz further claimed to have found something characteristic in the plasma which he called cytoplasma.

Bacteriologic study of the case reported in this paper showed the following: a smear made of the secretion from the right eye showed the presence of pus producing organisms only; in a culture using agar as the medium for growth the presence of streptococci and pseudo Klebs-Loeffler bacilli was demonstrated.

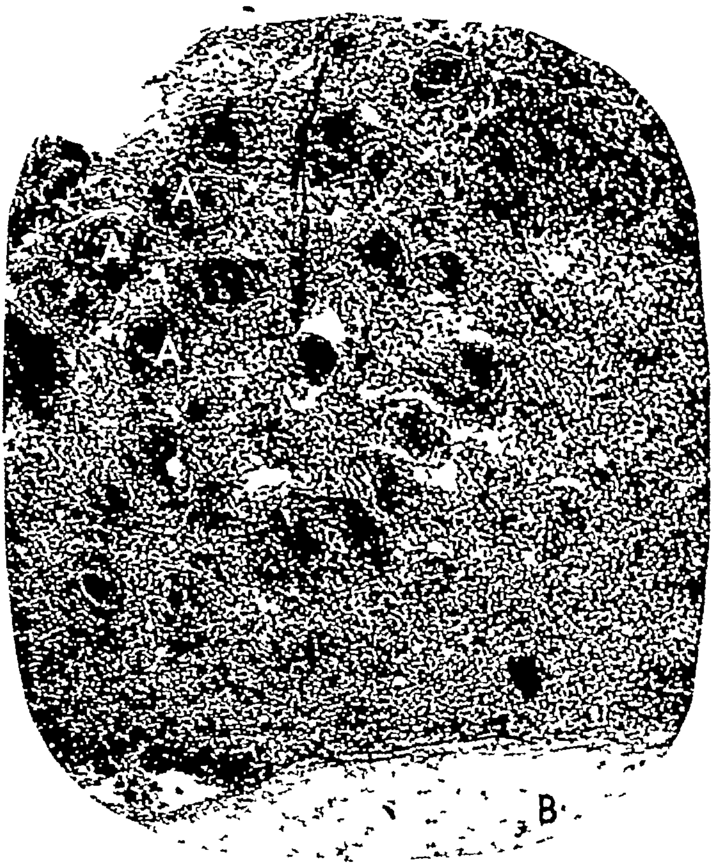
TREATMENT

As regards the treatment of pemphigus of the conjunctiva, there is not much that can be offered that is new or of any great value. Arsenic, in all of its forms has been used most generally, and when used, it should be pushed to its physiologic limit. It is of interest to know the different forms of treatment used in such a disease from time to time. Cooper, in the treatment of his case in 1858, used cold compresses, opened the bullæ and applied silver nitrate. Hassen[31] tried zinc sulphate in varying strengths, and Sattler and Pflugler used milk and oils. Barthelen and Sachsalber recommended lanolin and glycerin. Bellecontre, after his microscopic studies, made experimental use of antidiphtheritic serum injection. There were no especial improvements noted, but he asserts that it helped to check the progress of the disease.

Transplantation of conjunctival tissue, mucous membranes and skin have been tried at different times, but the results have not been eminently successful. The difficulty seems to be in getting the grafts of tissue to grow, notwithstanding the great vascularity of the conjunctiva. Not being satisfied with the results of Sattler's experiments in the surgery of this condition von Graefe tried the transplantation of mucous membrane from a dog and also from the mouth of a man with no better results. Sachs[32] in his cases used the skin from the prepuce but did not have great success as a reward for his efforts. None of these men had what might be called even fair results, as none of them succeeded in stopping the progress of the atrophy and symblepharon formation. Marple reports a case in which he used the skin from the inner side of the arm near the axilla. The graft took well and he was able to stop the progress of the disease. Four years after the operation the condition had not advanced and the disease was quiescent. Operative measures have also been employed in the hope of checking the deformity of the lids and these also have been most unsatisfactory.

The treatment employed in my own case was a boric acid wash four times a day to keep the lids clean and gentle applications of silver nitrate and the copper stick. Olei ricini was used three times a day to relieve the dryness of the conjunctiva and at other times this was alternated with liquid petrolatum. Arsenious acid was given over a long period of time, in gradually increasing doses. It did not seem to improve the patient's general health or have any especial action in the eye condition. The patient was urged to come into the hospital, but this was refused on account of his religious scruples. Operative measures were suggested for relief of the disease and the rapidly increasing destruction, but this was also refused.

62 West Fifty-Eighth Street.



A section of conjunctiva from the lower culdesac showing round-cell and leukocytic infiltration, new blood paths or channels (A) and hemorrhagic area (B) below. × 30.

ABSTRACT OF DISCUSSION

Dr. Casey Wood, Chicago: During an experience of twenty [illegible] I have [illegible] three [illegible] of ocular pemphigus. [illegible] two [illegible] tion [illegible] of both [illegible] in one case the patient became so blind that vision was reduced to perception of shadows In neither of these cases did any therapeutic measure do more than relieve some of the symptoms

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[27] Sachsalber: Klin. Monatsbl. f. Augenh., 1894, p. 241.
[28] Bellecontre: Quoted by Fergens: Pemphigus des Auges, Berlin, 1901.
[29] Franke: Der Pemphigus und die essentielle Schrumpfung der Bindehaut des Auges, Wiesbaden, 1900.
[30] Lipschutz: Centralbl. f. Bakteriol., May, 1910.
[31] Hassen: Quoted by Fergens: Pemphigus des Auges, Berlin, 1901.
[32] Sachs: Wien. klin. Wchnschr., 1893, p. 671.

In a more recent instance the disease was confined to lower culdesacs but involved both the ocular and palpebral conjunctiva resembling Koerber's case briefly outlined by Dr Weidler

Looking back on my slight experience of ocular pemphigus I have noticed that the disease is frequently mistaken for and treated as a manifestation of trachoma and this is an error that in some instances may easily be made

DR H W WOODRUFF, Joliet, Ill I operated for complete atrophy of the conjunctiva in a case which I attributed to pemphigus There might be some doubt as to the diagnosis, but it had reached the stage of complete atrophy so that there was no longer any culdesac It may be that trachoma may reach that stage after a long time, but I had never seen such a case and attributed it to pemphigus I entirely relieved the contraction by skin grafting after the method of using a plate of block tin with the skin graft placed over the tin, *doing it in two operations, that is, restoring* the lower culdesac first and afterward the upper one This gave the patient some mobility of the eye, but the clearness of the cornea was not restored

DR. E L JONES, Cumberland, Md I saw a very severe and typical case four or five years ago in which Dr Price, of Frostburg had made the diagnosis It was in an elderly woman already affected for several years with pemphigus in the vagina It had now affected the eye which looked as though it had been scalded, with white blisters It gradually extended until the entire conjunctiva was destroyed, also the cornea, and everything was matted and massed together In the course of time the other eye was affected similarly The disease lasted ten years or more The mouth was invaded by white blebs of gelatinous consistency, followed by atrophy and stricture of the esophagus with intense suffering, and for years the patient could only swallow milk in small sips All sorts of treatment were tried but nothing availed The woman has recently died

DR JOSEPH S LICHTENBERG, Kansas City, Mo I had a case exactly *parallel* with Dr Weidler's The history was indefinite, it could not be determined whether it was trachoma or pemphigus but from the age of the patient and the history it was concluded that it was pemphigus In this case I restored all four culdesacs with mucous membrane grafts taken from the mucous and submucous tissue of the lips on the Wolff principle and not on the Thiersch principle This case is now of four or five years' duration and still holds good

DR. WALTER E LAMBERT, New York I was called by a general practitioner to see a patient on account of the very serious involvement of both eyes in a case diagnosed as acute septic pemphigus, resulting from a streptococcus infection after a submucous operation in the nose The patient had a most extensive eruption, vesicular and pustular, involving the mucous membrane of the mouth, throat and eyes, and the skin over the entire body There was quite a high temperature and the suffering was intense The attending physician was greatly perplexed and at first, thinking it was a case of small pox, had called in a health officer Dr George T Elliot saw the case in consultation, and made a diagnosis of acute septic pemphigus The patient died from general septic infection three or four days later

DR WALTER BAER WEIDLER, New York When this patient was received in the clinic the diagnosis made was trachoma, but Dr Thomson seeing the patient immediately suggested the diagnosis of pemphigus, and thorough study of the case proved the correctness of that diagnosis The patient was presented at the Academy of Medicine and at the ophthalmologic and the dermatologic sections and there were some who doubted the correctness of the diagnosis, because there had been no general eruption whatsoever, but there were lesions which we were able to demonstrate in the nose Both eyes were completely sealed together at the palpebral margins, *and on the patient's last visit to the clinic* there was a general eruption of pemphigus seen on the abdominal walls

ORBITAL CELLULITIS FROM DISEASE OF THE SUPERIOR MAXILLA IN CHILDREN

WILLIAM CAMPBELL POSEY, M D
PHILADELPHIA

Orbital cellulitis in children is not very uncommon, and I should hesitate to ask the Section to devote any time to its consideration were it not for the fact that I believe the sublying cause in many of the cases which come under our observation is permitted to remain undetermined, and that we proceed with surgical and therapeutic measures without trying to analyze thoroughly the agency in each particular case which may have given rise to the cellulitis It shall be my endeavor, therefore, to elucidate, as far as I am able, the various conditions which may operate as etiologic factors in this affection, and to illustrate one phase of the subject I shall, without further preamble, recite the histories of two cases which I have had under my care at the Children's Hospital during the past few years

CASE 1 —*History* —F C , female, aged 1 year, came to the hospital Dec 15, 1906, on account of a deformity of the left lower eyelid and a discharging fistula in the same location The history as recorded by the resident physician, Dr Vail, is as follows The patient was the first child, no difficulty at birth, breast fed, vaccinated when 3 months old by the family physician, parents living and well When the child was 8 months old the left axilla swelled and was opened, pus escaping Pertussis occurred one month later, followed by pneumonia, with convalescence after two months A month later the left eye swelled and the lids shut tight, much pus running from the eye About the same time an abscess in the cheek opened spontaneously by way of the mouth

Examination —At admission, the head was found well formed, the left lower lid ectropionized, with a discharging sinus at *the lower outer angle of the orbit* Examination of the nose and throat was negative, vaginal smear negative

Treatment and Course of Disease —Under ether I passed a probe into the orbital sinus and dead bone was encountered on the floor of the orbit This was removed by curet and dissection, an incision having first been made along the lower rim of the orbit Part of a newly formed but decayed tooth was removed from the upper left alveolar process. Although the left cheek was considerably swollen, no sinus could be detected in the mouth The orbital wound was drained by a small tube The wound was dressed daily copious quantities of pus escaping through the drainage tube at each dressing At the expiration of six days after the operation the wound failed to drain and orbital cellulitis supervened, the eye being proptosed and the bulbar conjunctiva ecchymotic Dr Packard saw case in consultation and concurred in the diagnosis of necrosis of the left superior maxillary bone The patient was etherized a second time the orbital wound thoroughly drained and a sinus discovered leading from the dead bone in the floor of the orbit into the cavity of the bone The bone was incised through the cheek just above the alveolar process, and a drainage tube passed from the orbit through the bone into the mouth, thereby establishing free drainage Subsequent recovery was uneventful, the swelling in the orbit and over the superior maxillary gradually subsiding, and after some weeks the sinuses drying up Tonics and mercurial inunctions were administered throughout the entire course of the disease

CASE 2 —*History* —M Z , aged 2 years, was admitted to the wards Nov 2 1911, on account of a marked prominence of the left eye, with swelling of the lids and adjacent cheek, which had been present for some days before admission The mother stated that the child had been in good health, following an operation for abscess on the chest (empyema) some four months previously, *and denied the possibility of the* condition being due to a traumatism

Examination—Marked proptosis of the left eye was evident with all the attendant signs of orbital cellulitis The left cheek was also puffed and the palate and alveolar border were found to be indurated and swollen The left pupil was slightly dilated and an ophthalmoscopic examination revealed some pallor of the optic nerve, with distinct engorgement of the retinal veins The right eye and side of the face were unaffected Dr Packard examined the nose and throat and pronounced them to be normal

Treatment and Course of Disease—The case being regarded as one of osteomyelitis of the superior maxillary bone the patient was etherized and the orbital tissues and the alveolar border were freely incised, giving exit to a large quantity of thick pus A number of loose teeth were also removed from the affected alveolus No dead bone was encountered The orbital wound was drained from its most dependent portion and a dressing applied At the end of three weeks all the sinuses had closed and the child was discharged from the house Two weeks later, however, she was readmitted, on account of a painful swelling of the left leg This was incised and found to be dependent on disease of the tibia. At the end of another week the swelling reappeared in the left upper jaw and there was some proptosis The patient was again etherized and with the aid and counsel of Dr Packard the orbital and alveolar tissues were again incised. Several more dead teeth with sequestra were removed from the upper jaw and free drainage established from the orbital and alveolar structures The floor of the orbit seemed smooth anteriorly, but rough posteriorly, though it was impossible to assert positively that the bone was actually necrosed Healing slowly followed, the sinuses gradually closing, and the child was discharged at the end of another month as cured

In neither case was there a history of traumatism, and in neither had the attention of the mother been called to any nasal condition, and a careful examination of the nose by Dr F R Packard, the rhinologist to the hospital, which was made while the inflammation was at its highest, failed to reveal any evidence of nasal or sinus disease A history of inherited syphilis could not be obtained in either of the two cases and signs of tuberculosis were absent In each of the cases, however, there was evidence of previous infection of the general system, i e, axillary abscess and pertussis, followed by pneumonia, in the first case, and empyema in the second, while in the second, staphylococci were found in the discharges Unfortunately, no culture was made in the first case

I am led, therefore, to the supposition that the orbital cellulitis in these cases was due to disease of the superior maxillary bone, to an osteomyelitis, doubtless secondary to a general blood infection

ANATOMIC CONSIDERATIONS

When one considers the structure of the superior maxillary in infancy and early childhood, the reason for its not infrequent involvement in infectious processes is not difficult to understand, for at that age the bone is quite a different structure from what it gradually evolves into later For example, to quote Logan Turner [1]

> At birth the body of the superior maxillary is made up almost entirely of the alveolar process of the jaw, the sockets of the teeth being almost in contact with the orbital plate of the maxilla forming the floor of the orbital cavity The antrum exists merely as a slit like indentation on the outer wall of the nasal chamber, and there is, therefore, at birth no maxillary sinus beneath the orbit." According to Turner the growth of the body of the bone, and with it an increase in the size of the face takes place by the formation of a mass of cancellous or spongy bone between the alveolar process and the orbital plate of the maxilla In this way the alveolar process, along with the teeth, becomes separated from the orbital plate A little later, coincidentally with the increase in the cancellous tissue on the facial and dentary aspects of the bone, a process of absorption apparently takes place on its nasal and orbital surfaces thus causing an increase in the size of the antrum This simultaneous process of growth and absorption continues until the eruption of the third permanent molar or wisdom tooth at or about the twenty fifth year of life at which time the antrum reaches its complete or adult form

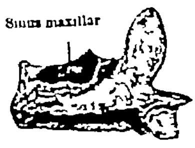

Fig 1—The left superior maxilla of a new born child viewed on its nasal aspect This and the three following figures show the development of the superior maxillary bone from "The Accessory Sinuses of the Nose" by A. Logan Turner

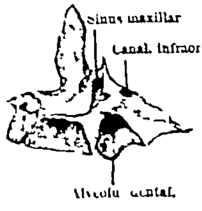

Fig 2.—Vertical transverse section through the right superior maxilla of a new born child viewed from behind The antrum is a mere recess on the nasal aspect of the bone and the teeth sockets lie almost in contact with the floor of the orbit

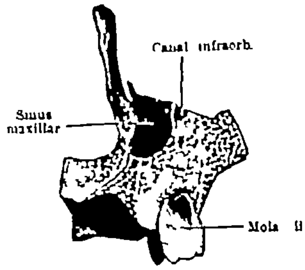

Fig 3—Vertical transverse section through the right superior maxilla during the first dentition on the plane of the second molar tooth. The antrum viewed from behind is small and the body of the maxilla consists mainly of cancellous bone

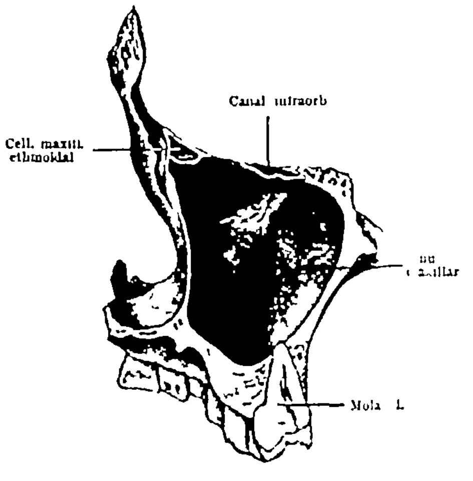

Fig 4—Vertical transverse section through the right superior maxilla of an adult viewed from behind on the plane of the first molar tooth The section shows that the cancellous bone is almost entirely absorbed and that the maxillary sinus has reached its full dimensions The fang of the tooth projects into the floor of the sinus

In infancy therefore the cancellous structure of the bone largely predominates rendering [illegible] liable to inflammatory proc

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[1] Turner Logan Accessory Sinuses of the Nose Edinburgh, 1901 p. 5

Four illustrations (Figs 1, 2 3 and 4) have been reproduced from Turner's admirable book, which will illustrate the changes which have just been described, and demonstrate the manner in which the bone evolves from a mass of cancellous bone to a thin framework, offering attachment to the upper teeth, forming walls for the important spaces which surround it, as well as for the huge antral cavity within its structure

When the complexity of the mechanism of dentition is considered, it becomes apparent, I think, how easily infection of the alveolar border may be followed by a general inflammatory process of the entire bone A study of the literature has revealed a number of cases in which such was the case, the inflammation being apparently conveyed to the alveoli by an infected nipple during the act of suckling The alveolar border once involved, suppurative periostitis soon extends rapidly under the periosteum along the anterior surface of the upper jaw or through the maxillary antrum to the orbit As a rule, an acute osteomyelitis of the entire superior maxillary follows with all the signs of an active inflammatory process, such as is observed from whatsoever cause The cheek and lids become swollen, the globe is proptosed and its movements restricted The hard palate is swollen and edematous and the alveolar process tumefied There is a marked tenderness over the superior maxillary and pain may be complained of This may be localized or may radiate into the temple, forehead, into the nose and teeth, or may be referred to the entire half of the corresponding side of the face The pain may be most intense, especially at night, and may be accompanied by vomiting The inflammation in the orbit may extend along the periosteum posteriorly, and, invading the sphenoidal fissure, may implicate all the nerves of the orbit, both motor and sensory The Gasserian ganglion may become affected and keratitis neuroparalytica may supervene with or without concomitant symptoms Phlegmon of the orbit may arise from inflammation of the fatty cellular tissue of the orbit and may be followed by thrombosis of the orbital veins or even of the cavernous sinus

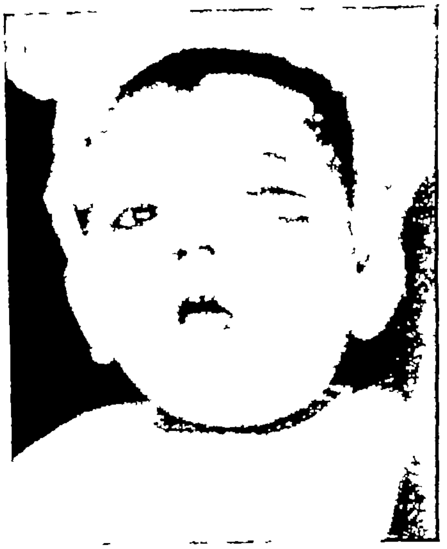

Fig 6 —Case 2 showing sequel of orbital cellulitis fistula at lower outer rim of orbit, with swelling of the cheek

Not infrequently the optic nerve becomes implicated and the ophthalmoscope may reveal the signs of neuritis, and if the inflammation be continued, of atrophy After a variable period of time, but generally rather rapidly cure may follow by absorption and the affection may disappear without leaving a trace, more usually, however, spontaneous evacuation follows the suppurative process and fistulas persist in the orbit and in the mouth In consequence of the former, cicatrices affect the lid and ectropion results At times the entire lower rim of the orbit may slough away, leaving a most disfiguring, indrawn scar (Figs 6 and 7) As is usually the rule in osteomyelitis, the sequestrum shows but little tendency to separate itself from the living bone for a long time, so that healing is frequently very protracted

Orbital cellulitis may arise from disease of the superior maxillary in consequence of traumatism, indeed it not infrequently happens that a very slight blow will excite most active symptoms in children in whom the vitality has been lowered by some form of exhausting disease

Morax[5] has recently drawn attention to this class of cases and describes how staphylococci circulating in the blood may infect the site of a contusion endogenously and may give rise to osteomyelitis in cases in which there had been no wound in the integument Willard[6] asserts that while the staphylococcus is the most common bacterium present, the pneumococcus and streptococcus, or other organisms are occasionally encountered

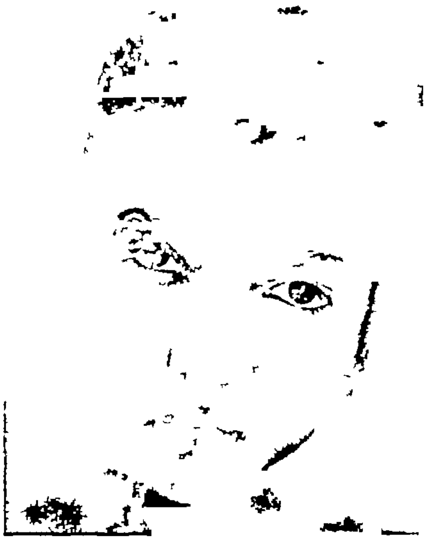

Fig 7 —Tuberculosis of the superior maxillary bone with abscess of the orbit showing ectropion of upper lid due to cicatricial connections with upper rim of orbit

While no history of trauma was obtainable in either of my cases, it is not unlikely that some slight injury may have occasioned and excited the inflammation in the superior maxillary, the bacteria in the blood acting endogenously in giving rise to the general osteomyelitis

Contusion of the orbit is especially liable to be followed by caries of its walls when the subjects are tuberculous, such as is observed when other bones are injured in this class of cases Tuberculosis may affect the orbit, however, without the necessity of an injury to excite it, the superior maxillary and the malar being in common with the inferior maxillary the most common seat of tuberculosis of the face

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[5] Morax Ann d oculist March 1903 p 208

[6] Willard Surgery of Childhood 1910

We are now brought to a consideration of the possibility of orbital cellulitis in the class of cases under discussion being occasioned primarily by an inflammation of the maxillary sinus, and while there are those[8] who assert that the antrum is too small at such an age to be the seat of an inflammatory process sufficient to excite an osteomyelitis in the body of the bone, it seems to me that the recent studies of Onodi and the large number of clinical observations which have been recorded by trustworthy observers attest that such may be the case, and that we must acknowledge that such an inflammation may not be an infrequent cause of disease of the orbit in children

All of us will doubtless bear testimony to the debt ophthalmology owes to Onodi in his elucidation of the manner in which the optic nerve may be involved from sphenoiditis and ethmoiditis in adults, and it is my opinion that the observations of this distinguished Hungarian rhinologist in his most recent volume[9] will prove of equal value to us I have ventured to reproduce a number of the plates from this book, which show the development of the antrum and trace the growth of the cavity through its entire development

The reproductions have been reduced in size, but show in coronal, horizontal and longitudinal sections the topographic relations and form of the maxillary antrum from birth to the eighth year

These investigations prove apparently that the antrum is quite large enough to become the seat of inflammation even in the earliest months of life To these favoring anatomic conditions the weight of actual clinical experience may now be added

In an admirable dissertation, Guisez[10] has given the clinical picture of maxillary sinusitis in the infant and attributes the common or acute form to grippal coryza, to involvement of the mucous membrane of the sinus during convalescence from infectious diseases, or, in fine, to any form of nasal infection On account of the thinness of the anterior wall of the sinus at that age, he asserts that the sinusitis manifests itself principally by the external symptoms, which are, in consequence, much more accentuated in infants than in adults The cheek swells and is edematous, the lids become involved and the tissues of the orbit are affected -Discharge from the nose is at all times incessant and abundant Osteomyelitis of the body of the bone follows and caries sets in In one case of an exceptionally severe nature, which nearly terminated fatally, Guisez was compelled to operate to relieve the symptoms occasioned by thrombosis of the ophthalmic vein

Comparatively recently Beauvois[11] sums up the entire subject in a masterful manner and in addition to other cases cites that of an infant 15 days old, in which orbital inflammation was attended by a copius discharge of pus from the nose, the exophthalmos gradually disappearing as the nasal discharge subsided Beauvois suggests that in very young infants the leukorrheal discharge of the mother may readily infect the nose of the infant, or the contagion may be conveyed through the medium of the bath or even of the air

Fano,[12] Weissman and Fiocre[13] and Dujardin[14] have all reported cases of sinusitis in children, the latter in an infant 19 days old

It has long been a matter of clinical experience that orbital cellulitis may follow scarlet fever, measles, typhoid fever tonsillitis, erysipelas small-pox and other infectious diseases and there is strong evidence that in many of these cases, at least the inflammation in the superior maxilla follows a primary involvement of the antrum

Lange,[15] for example in a paper containing most of the literature on the subject has reported six cases following scarlet fever in which an acute empyema of the sinus gave rise to osteomyelitis of the superior maxilla and terminated in caries of the bone with the formation of sequestra, precisely as is so frequently observed in middle-ear disease after this form of fever

Estor[16] is authority for the statement that maxillary sinusitis may also originate in children from a carious tooth, just as it does in adults, the alveolar process becoming infected and the inflammation spreading by continuity of tissue under the periosteum to the antral cavity

While American literature, which is so full of original treatises on all forms of sinus disease and its treatment, contains but scant reference to the subject F Krauss has recently reported a case of orbital involvement from disease of the superior maxilla in a 4-months old child, in which the inflammation was apparently dependent primarily on antral disease

As in the diagnosis of disease of the sinuses in adults, much information may be derived from an x-ray study of their condition in children and those interested will do well to consult the splendid series of radiograms of infants' sinuses recently published by Haike[17] as well as those by Onodi In all suspected cases of primary sinusitis, care should be exercised to exclude the presence of a foreign body in the nose and intranasal syphilis

Syphilis, however, of the superior maxilla is rare in children Neither Hutchinson nor Keyes refer in either of their text books to the possibility of this bone being the seat of syphilis in young subjects, though both describe at some length the infiltration and softening between the tables of the skull and in the sutures and the diffuse periostitis of the frontal and parietal bones, which occur at this age Indeed, Hutchinson[18] asserts that while children of the age of 6 to 10 to 14 years appear to be prone to suffer from bone disease of a syphilitic nature, and at this period of life multiple periostitis of a very extensive kind is not uncommon, the periostitis of inherited syphilis which leads to suppuration is but seldom met with in infancy When syphilitic periostitis does affect the orbit, both cavities are usually involved and the diagnosis is rendered easy by the evidence of periostitis elsewhere in the body

Treatment consists in early evacuation of the pus from the orbit and of establishing proper drainage from that cavity and through the body of the superior maxilla if it, too, be the seat of disease

Prompt healing may follow and even when necrosis of the bone occurs almost complete regeneration of the bone will take place provided the periosteum be saved

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[8] Axenfeld (Bacteriology of the Eye p 387) with his vast experience says that these rare cases of orbital cellulitis in infants cannot be associated with affections of the sinuses as these latter are either absent or underdeveloped up to the eighth year and asserts that it is only after the sixth year that a nasal etiology becomes important. The youngest subject he has seen with orbital abscess which certainly originated from a sinus (sphenoidal containing streptococci) was 3 years old

[9] Onodi The Accessory Sinuses of the Nose in Children

[10] Guisez Le Pratique des maladies des enfants p 346

[11] Beauvois Rec d'ophth 1908 p 51

[12] Fano Jour d'ocul et chir Paris 1873-1874 I

[13] Weissman and Fiocre Ann d mal d l'oreill et du larynx 1901

[14] Dujardin Jour d Sc med de Lille Feb 24 1888

[15] Lange Med Klin Aug 19 1906

[16] Estor Guide pratique d chirurgi infantile

[17] Haike Arch f Laryngol u Rhinol 1910 xxiii 237

[18] [illegible] Keyes Syphilis p 357

Should deformities of the lids occur in consequence of contractions from fistulæ, they should be corrected by plastic operations some months after all acute symptoms have subsided

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ABSTRACT OF DISCUSSION

Dr F R Packard Philadelphia Dr Posey calls his case a case of orbital cellulitis due to disease of the superior maxillary bone—not due to disease of the maxillary sinus I remember in the 1910 meeting of the American Otological Society, Dr William C Braislin of Brooklyn, read a paper on the accessory sinuses of the nose in a 5 year old child, with notes on cases of suppuration of the antrum of Highmore at and before that age He described one or more cases practically identical with the two reported by Dr Posey In the discussion that followed, a great majority took the view that there was no such thing as suppuration of the antrum in a child 1 or 2 years of age in other words, that the antrum was not sufficiently developed to permit of suppurative disease, in the true sense of that term As Dr Posey said, Onodi has pointed out recently in agreement with other men who work on the accessory sinuses that this sinus is appreciably well developed in the first year Onodi has done more than anyone else to show that this sinus is the first one to be developed It is present at birth and within a month is a fair sized cavity At that time also its opening is large and its floor is lower than the ostium In other words at a very early age the maxillary antrum possesses the same disagreeable characteristics as in adult life namely a large portal of entry for organisms and poor facilities for drainage The cases, however, which are reported ordinarily as maxillary suppuration in young children have all of them as far as I can learn presented characteristic disease of the maxillary bone, and not the ordinary suppurative sinusitis

I believe that the explanation of these cases is to be found, not only in the entrance of infection between the teeth, as Dr Posey mentioned but also in the fact that the child's nose is just as susceptible to inflammation or infection as the adult's and that the large size of the antral opening which is very much larger in early childhood than in the adult, accounts for some of these infections and therefore if micro-organisms once get in either through the tooth channel or the ostium, the large mass of cancellous bone tissue which undergoes subsequent absorption to form the antral cavity is the kind of bone which is susceptible to osteomyelitis and other inflammatory bone troubles In other words I think Dr Posey chose wisely when he termed his cases diseases of the maxillary bone and not of the sinus although the infection of the bone occurred through the small chamber corresponding to the large antrum which we find in the adult skull

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MEASUREMENT OF FATIGUE OF THE OCULAR MUSCLES

LUCIEN HOWE M D

BUFFALO, N Y

I INTRODUCTION

1 *Object* —The object of this study was to obtain a record written by the ocular muscles themselves of the fatigue which they develop under various circumstances This was with the expectation—which has apparently been realized—that the data thus furnished would enable us to separate more clearly the factors which, when grouped together, have been called "eye-strain"

2 *Method* —The autographic records here referred to have been made by a modification of the ergograph This is a piece of apparatus well known to physiologists, and described now in all of the text-books on that subject But as it is important for our purpose to understand the principle on which it depends, its construction and action, it is desirable first to consider briefly the measurement of fatigue in other muscles, in animals and in man

II FATIGUE OF MUSCLES OF THE HAND OR LEG AS MEASURED BY THE ERGOGRAPH

More than twenty years ago an Italian, Mosso, measured the fatigue produced when a given group of muscles contracts repeatedly To the last phalanx of one of the fingers he attached a sort of glove, from which a string extended horizontally over a pulley, and to the other end of which a weight was attached (Fig 1) Each contraction of the finger required a given amount of work to lift the weight The extent and character of these contractions were registered on a receiving drum

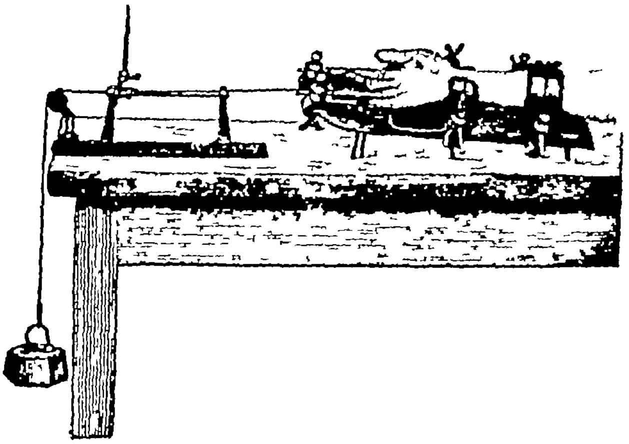

Fig 1 —General view of the ergograph of Angelo Mosso (Arch f Physiol 1890)

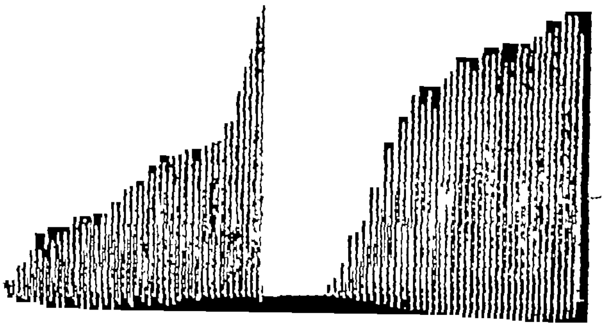

Fig 2 —An ergographic record of fatigue of the muscles of a finger

Such tracings made by the leg muscles of the frog, or of some other cold-blooded animal, usually give the most typical pictures (Fig 2)

Although these tracings are familiar to every student there is one point about them, not always mentioned in the text-books, that is of clinical importance It is known among physiologists as the "*Treppe*," or "staircase"

As long ago as 1865 Ranke said "Everyone knows that the first twitch of a muscle is not its greatest With stimuli uniform in strength, the later contractions are stronger than the earlier ones—a phenomenon the reason for which has heretofore been wholly obscure"

In other words, when we look at tracings of this kind, taken together, they form, as it were, a series of waves This is not so usual in the frog and other cold-blooded animals used in the laboratory to show the ergographic curves to the best advantage It is found, however, quite frequently in the warm-blooded animals, and the effects are seen in the tracings with which we are to become acquainted

III OPHTHALMIC ERGOGRAPHS

1 *Definition*—This term, 'ophthalmic ergograph," is apparently the best for an instrument which measures the fatigue of the ocular muscles It is nothing more than a combination of some appliance for producing fatigue of those muscles, together with a revolving cylinder or drum on which the degree and frequency of the muscular contractions can be registered

2 *Varieties*—There are two quite distinct forms of the ophthalmic ergograph The first is an arrangement by which prisms are adjusted to the revolving drum Such prisms measure only the fatigue of the extra-ocular muscles when the point of fixation is a candle, point of light or similar object situated at least 6 meters distant In this way efforts of accommodation in emmetropic eyes are eliminated When the prisms are turned with their bases out, and measurement therefore is made of the action of the adductor groups the arrangement can with propriety be called an adductor, or "convergence ergograph" Or, if the prisms are turned with their bases in up or down the same instrument becomes an abductor or divergence ergograph, or a superductor or subductor ergograph according to the direction of the prisms

A second variety of the ophthalmic ergograph consists of an arrangement for measuring fatigue of the ciliary muscles But that is not considered at present[1]

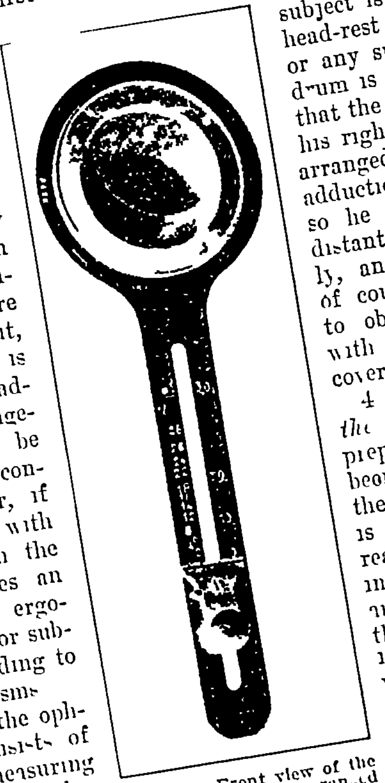

Fig 3—Front view of the revolving prisms as arranged by Crete.

IV THE CONVERGENCE ERGOGRAPH

1 *Construction*—A pair of Crete prisms (Fig 3) (the original form of the Risley prism) is fastened by two clamps to the upright which supports the revolving drum A delicate rod of brass is attached, near one end, to the pointer which slides over the drum The other end of this rod, extending horizontally outward toward the drum terminates in a point which records when there is blackened paper on the drum Or, if a suitable pen is made fast at the end, this pen records when there is white paper on the drum

For laboratory work a chronograph, of course, makes the tracings more exact One of these has therefore been used when accuracy was desired and the notches at regular intervals are shown on some of the tracings We shall see, however, that a chronograph is not necessary for ordinary clinical work

2 *Preparation of the Ergograph for Laboratory Study*—The blackened paper having been attached to the drum the tracing point is made to touch the paper, and the drum is revolved once to mark the zero line around the drum The pointer on the handle which slides along the scale is then pushed up to the mark indicating a prism-strength of 10 degrees, and a second horizontal line is run around the drum Other horizontal lines are made to indicate a prism-strength of 20 or 30 degrees Or, if great exactness is desired we run other horizontal lines also at 5, 15, 25 degrees, or even at shorter intervals

3 *Adjustment of the Subject to the Instrument*—The person under examination is placed opposite a distant candle-flame, or preferably a point of light in a Thorington chimney The head is held steady or if the subject is restless we may make use of the ophthalmic head-rest It is better, however to do away with this or any superfluous appliances whenever possible The drum is then moved into place Experience has shown that the most convenient position for the subject is with his right eye looking through the prism, which is then arranged to measure adduction As he does so he should see the distant light distinctly, and there should, of course, be nothing to obstruct the view with his other (uncovered) eye

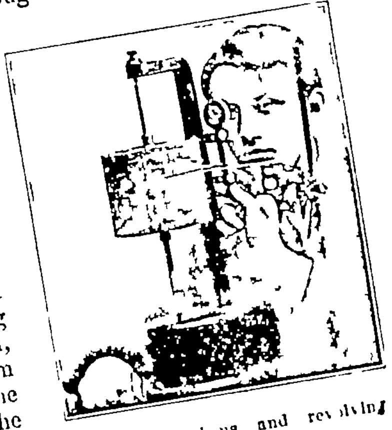

Fig 4—Prisms and revolving drum in position

4 *Manipulation of the Apparatus*—All preparations having been thus completed, the lever of the drum is released and the reading begun The individual under examination himself or the one who is directing the experiment then slowly pushes up the pointer which is on the handle of the prism-case thus increasing their strength At the same time the examiner asks the subject to note whether he sees one light or two As long as only one light is seen the index is pushed up slowly but regularly The moment two lights appear, the subject says 'two' The pointer is drawn down promptly, the strength of the prisms at once reduced to zero, and the subject sees only one light (Fig 4)

Again, a second time the pointer is pushed up slowly and regularly thus increasing the strength of the prism until the subject says "two" Immediately the pointer is drawn down the strength of the prism reduced to zero and the subject sees only one light This is done a third, fourth fifth time and so on Not infrequently we find that a group of muscles which appears to be practically exhausted suddenly and for some unknown reason seems to regain strength and the power of overcoming stronger prisms returns in response to renewed effort Usually, however, the fatigue returns sooner than before and sooner with each succeeding return of strength The variations in power are examples of *Treppe*

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[1] The description of that instrument with the curves obtained with it was at first incorporated in this paper and submitted with it but as that made the article too long the consideration of the accommodation ergograph has been omitted

It should be understood that when the ergographic tracing is taken of convergence in a pair of normal eyes in a young healthy person, quite frequently it is not possible to notice for some little time that any fatigue occurs If, for example, the person is able to overcome a prism of 12 degrees in the first effort at convergence, he can perhaps continue to overcome this prism not only at a second or third effort, but after a considerable number of efforts Indeed, it may happen that after the revolving combination has been gradually increased to this extent several times, there may be developed an additional strength sufficient to overcome a prism of 16 or 18 degrees, or more But if the prisms are used with the ergograph, as described, persistently and carefully, after a time, in every case, distinct fatigue begins to show itself The power of overcoming prisms tends to grow less and less, until finally it is reduced to practically nothing

5 *Clinical Use of the Convergence Ergograph*—The foregoing has to do with the use of the ergograph as a laboratory instrument It is desirable to consider first the method which gives the most constant results when tests are made of normal eyes But, when using the ergograph for clinical purposes, several details can be altered or omitted without practical loss in efficiency

The first modification which suggested itself was to dispense with the chronometer When making exact tracings for laboratory work it is very satisfactory to have, immediately in front, the record of a clock which ticks seconds or fifths of seconds But if the mechanism of the drum is properly arranged, it has been found to revolve at practically a uniform rate of once in about 340 seconds

A second modification of the ergograph for clinical purposes is the use of a pen on white paper instead of a style-point on blackened paper Every one accustomed to laboratory work appreciates the inconveniences necessitated by the blackening of a cylinder We know how easily the surface becomes marred, and how necessary it is to fix the record in a shellac solution as soon as the tracings have been made This inconvenience is obviated largely by the use of a specially made pen which holds a drop or two of ink

A third modification is the drawing of the base line only The fact is that the mechanism which revolves the prism is such that the scale which marks a prism of 10 degrees is about 7 5 mm above the zero line, the point on the scale which marks a prism of 20 degrees is about 15 mm above the line, the point which marks the prism of 25 degrees is about 23 mm above, and so on Although this is a small detail, it is one to which a very considerable amount of time must be given, and for the busy practitioner each minute that any measurement requires is a minute given under protest

6 *Measurements with the Convergence Ergograph*—A Tracings Made by Emmetropic Eyes in Healthy Subjects In using the term "emmetropia" it should be remembered that this condition exists only in a small percentage of persons In this connection, therefore, eyes were considered emmetropic when the ametropia did not exceed 0 75 and when tests of muscle balance showed orthophoria or an esophoria of not over 2 or 3 degrees Moreover, the persons selected have been those who have not suffered from what we understand generally as asthenopic systems They have been in at least fair physical condition

A word of explanation concerning the records is necessary Where horizontal lines are drawn on the records, the first one represents the base-line, the second is drawn at the point where the index of the revolving prism marked a strength of 10 degrees, the next line at 20 degrees, and the upper one at 30 degrees In a few of the tracings these horizontal lines are lacking They could easily be supplied, if desired, by drawing them with the pen, but it seemed better to present the records just as they were The fact is, also, that it requires only a little practice for one to judge by the eye with considerable exactness as to the strength of the prism which has been overcome, and the simple application of a millimeter measure shows practically the degree at any time An average normal fatigue curve is shown in Figure 5

B Diurnal Variations in the Same Individual Students of the ordinary ergograph learned long ago that the strength varied at different times and also under different conditions of health, as shown by the contraction of the finger The renewed vigor which came after a meal or after sleep shows itself, not infrequently, in the ability of the muscles of the finger to contract longer than after the onset of general exhaustion This is apparently the case, also, with the muscles of the eyes For this reason the ergograph tracing or fatigue curve may vary from the example given in Figure 5, not only for different individuals within normal limits, but even for the same individuals at different times

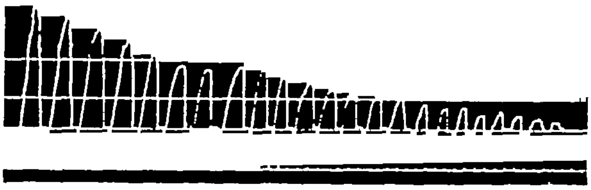

Fig 5—Fatigue of convergence in normal eyes

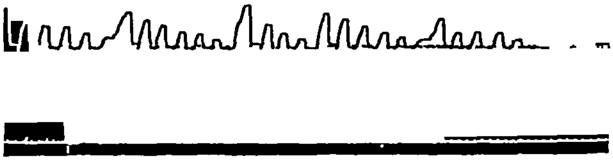

Fig 6—Fatigue of convergence with variations in the power of adduction An example of the so-called *Treppe*

C The Strong-Muscle Type This variation from the ideal fatigue-curve is much more frequent than the weak muscle type The best examples are found in vigorous subjects It is true, these resemble, to a certain extent, the tracings made with subjects who present typical symptoms of esophoria

D The Weak-Muscle Type This is often found in pathologic conditions, but occasionally also in persons whose eyes are otherwise normal, and who have never suffered from asthenopic symptoms There are two varieties of this weak-muscle type In one, the muscles themselves have little power to make even a single effort in the other the muscles soon become fatigued, or, even if moderately strong at first, they soon become exhausted

E Examples of the *Treppe* In the introductory statements concerning the use of the ergograph, mention was made of the fact that in some persons the tracings showed that after fatigue of the muscles of the finger had begun, for some unknown reason they seemed to regain their strength temporarily This occurs also with the muscles of the eyes, as just mentioned An example of it is seen in Figure 6 This condition occurring in otherwise normal eyes and in persons with good health is interesting and suggestive Although we know little of the causes, it is apparently the analogue on a small scale, of conditions which we find constantly in the muscular system of the body as a whole, and of the eyes especially

V FATIGUE OF ABDUCTION

Thus far we have dealt only with the application of the ergograph to the adductor muscles, and have called the instrument, when arranged in this way, a convergence ergograph But it is evident that by simply turning the revolving prisms around, bringing the bases toward the nose, and changing the mechanism so that the pen rests properly on the revolving drum, it is possible to make the abductor muscles write their record as the adductors had done before Such a tracing is shown in Figure 7

VI FATIGUE OF SUPERDUCTION AND SUBDUCTION

Every student will remember that in the physiologic laboratory the ergograph was used quite as frequently with the drum in a horizontal as in a vertical position Indeed, such instruments have an offset or foot near the top of the vertical bar, in order that such a change of position can be readily made

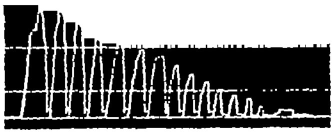

Fig 7 —Fatigue of divergence

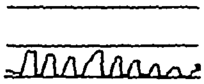

Fig. 8 —Fatigue of superduction with a tendency to the *Treppe* '

In other words, it is necessary only to raise the level of the table, or lower the chair on which the subject sits, and then, tipping the ergograph horizontally, to have the person under examination look with his left eye through the revolving prisms The instrument is then an ergograph for measuring fatigue of sursum- or of deorsumvergence

It is necessary, however, to exercise more care with the vertical muscles than when dealing with the horizontal groups, for even under normal conditions vertical diplopia is produced by a very weak prism (Fig 8)

VII FATIGUE OF ABNORMAL EXTRA-OCULAR MUSCLES

Thus far we have considered only the fatigue of practically normal eyes, but the student of this subject very soon finds that the tracings made by abnormal muscles are not only most varied, but full of interest

At present it is only possible to state that these tracings resolve themselves into two great groups belonging to muscles which are abnormally strong or abnormally weak

1 *Excessive Convergence With Delayed Fatigue*—At first glance it may seem incongruous to associate an apparent excess of strength with a pathologic condition But as spasm of accommodation can be distinctly diagnosed by appropriate tests and as Schmidt-Rimpler and others consider that certain degrees of such spasm are quite common, so do we meet occasional instances of spasm of accommodation with esophoria of quite high degree And in these cases, when we take tracings with the convergence ergograph we are apt to find a condition of "excessive convergence with the fatigue long delayed "

2 *Insufficient Convergence with Rapid Fatigue*—We find here not only a low power of convergence but that fatigue occurs promptly and soon passes into a condition of exhaustion Another type is that in which the power of convergence is small at the beginning The fatigue begins promptly but unlike the last does not pass on to exhaustion On the contrary we have the same ability to continue short contractions for a long time as is found often in strong and healthy subjects

Also, we have unusual variations in the same individual at different times, apparently as the result of treatment

3 *Variable Pathologic Tracings*—In some of these we find that the first few contractions point to the strong-muscle type But as the contractions are repeated the muscle soon begins to "run down " In other words, the condition is suggestive of that in which an apparently strong man succeeds in lifting a rather heavy dumb-bell, but after one or two efforts fatigue shows itself Such muscles are weak rather than strong

This condition is usually associated with one in which an apparent fatigue is followed almost immediately by the ability of the muscle to contract at least for a few times, with considerable strength Such muscles furnish examples of the *Treppe* In this first communication it is possible only to describe the method of making ergographic measurements of the extra-ocular muscles, and to give a few of the average tracings obtained from normal eyes, also to indicate in the briefest manner possible what variations from that normal condition we may expect, when the extra-ocular muscles are in an abnormal condition

It should be stated, however, that during the past few years many data have been collected to show more completely the tracings made by abnormal extra-ocular muscles and also tracings made with the accommodation ergograph by normal and abnormal eyes It is quite impossible, however, to present these data at present

VIII CONCLUSION

This ergographic method of measuring ocular fatigue gives us entirely new and apparently important data concerning the continued action of different groups of muscles It shows us for the first time, how fatigue occurs under normal conditions—what different types we may expect and what variations are not unusual

We can now measure and record not only the initial strength of certain groups of muscles, but how long a given action can be continued without marked fatigue In this way by resolving the complicated problem which we call 'eye strain' into its different factors, there is more hope of solving it

Thus a new field in the realm of ophthalmology opens before us The probable value of the data which can be found there seems to warrant this preliminary communication concerning it

NOTE.—Any who may be interested in the general subject of ergography will find the most complete list of references in the article by Zacharias Treves [illegible] den gegenwärtigen Stand unserer Kenntnisse [illegible] ergographie [illegible] Arch. f. d. [illegible] Physiol 1901 [illegible] Jahresbericht an [illegible] thus far [illegible] tracings of fati[illegible]

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ABSTRACT OF DISCUSSION

DR CHARLES H. WILLIAMS, Boston Dr Howe's paper shows very well the effect of fatigue in reducing the energy of the contractions of certain sets of ocular muscles when responding to repeated efforts in the same direction

The practical questions which concern us most is what is the resultant effect of fatigue on the six external muscles of each eye in altering the direction in which the axes of the eyes will stand and how we can best measure the combined effect of those muscles on the position of the eyes There are two conditions under which this muscular action must be studied, first, when the eyes are looking at an object at a distance of 5 meters or more, and the normal eyes should have their axes approximately parallel, and second, when the eyes are looking at an object at a reading distance of about 45 or 50 cm, and the axes of the eyes should be converged to that point With the Maddox rods and candle there is an unconscious tendency for the muscles to turn the eyes so that the line of light seen by one eye will fall on a portion of the retina in the other eye on which the image of the candle is focused and the line of light and the candle will, with small deviations, seem to coincide, and this defect is common to any form of test in which each eye sees only one object Suppose, however, that one eye sees a row of figures and the other a single line, there is no tendency for the muscles to turn the eyes so that the line will stand over the number two, or the five or any figure in preference to the others, and the position which this line assumes on the row of figures may be used to determine whether the axes of the eyes are in their normal position or what the amount and direction of their deviation is

At the meeting of this Section at St Paul, I showed an instrument for measuring the position of the eyes at a distance of 5 meters which has worked so well and so quickly that it is used as a part of the routine examination of every case, and now I present a modification of this instrument adapted for a distance of 45 cm or an average reading or writing position

The smaller instrument, for the reading distance can be used in an office while lighted with ordinary daylight, but for the larger one, where the light cannot be so intense, a darkened room is better

DR G C SAVAGE, Nashville, Tenn The study of the fatigue shown by the machine Dr Howe exhibits develops three questions 1 Is it mind fatigue? 2 Is it brain fatigue? 3 Is it muscle fatigue? It is one or another or all of these The faculty of the mind controlling fusion is not volitional, and it is possible that this faculty grows tired of forcing the brain to accomplish the work of fusion It is also possible that the brain center supplying the necessary neuricity becomes exhausted and is no longer able to supply the power It is possible that the muscle grows weary in its work of turning the eye so as to keep the macula under the moving image Leaving the mind and muscle out of the question, for the moment, I wish to discuss the brain center furnishing the neuricity for effecting the fusion There are but three centers connected with the right internus (it is the right eye before which the rotary prism stands), namely (a) the third center which is connected with both interni and is the convergence center, under the control of the will, (b) the fifth conjugate center, which is connected with the right internus and the left externus, and is the center which turns the two eyes to the left This center is under the control of the will (c) the right third basal center, which is connected alone with the right internus If the fusion impulse is sent from the third conjugate center, the left eye would move in the convergence effort in harmony with the movement of the right eye But does the left eye move? The image of the candle in the left eye is on the macula, and if the internus of that eye moves the eye, the macula must leave the image The only reason why the right eye moves when the image is being displaced temporalward is that the macula may be made to follow the moving image The left eye does not move therefore the neuricity does not come from the convergence center If the neuricity comes from the fifth conjugate center, the left externus will move the left eye in harmony with the action of the right internus, for the reason given above The left eye does not move at all, and only the right eye is set in motion as its image is moved by the rotary prism Hence, the fusion impulse does not come from the fifth conjugate center If the fusion impulse comes from the right third basal center, all the neuricity is sent to the right internus, for this center is connected only with that muscle, and under the influence of this center the right internus contracts to the extent of its ability in its effort to make the macula remain under the moving image No other muscle belonging to either eye is stimulated into activity This power manifested by the right internus should not be called convergence power, but duction power Convergence is volitional, duction is fusional and wholly involuntary

WENDELL REBER, Philadelphia How long does it take to apply this instrument to the patient in the office?

DR. LUCIEN HOWE, Buffalo, N Y About three minutes, when the examination is long it requires five minutes

I am afraid I have not made myself clear I tried to say at the outset that these measurements had nothing to do with the question of the position of the visual axes Dr Williams, I am afraid, has confused these measurements of fatigue with tests for orthophoria or heterophoria. It has nothing to do with them The ergograph simply shows how soon a given group of muscles becomes fatigued

As for the point raised by Dr Savage concerning the condition of what he calls the neuritic battery, I must confess myself quite ignorant of all those hypothetical and theoretical questions The ergograph writes its own story of definite data

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SUGGESTIONS REGARDING SOME POINTS IN THE TECHNIC OF CATARACT EXTRACTION

SAMUEL THEOBALD, M D
Clinical Professor of Ophthalmology and Otology Johns Hopkins University Ophthalmic Surgeon to the Johns Hopkins Hospital and to the Baltimore Eye Ear and Throat Charity Hospital
BALTIMORE

Having some years since, tried "simple extraction" and having, like most ophthalmic surgeons, abandoned it, I offer in this paper "suggestions" having to do with "combined extraction" only for the uncouth procedure known as the Smith operation has never appealed to me Indeed, though I may be wholly in error, I am more than half inclined to the belief that not a few of those who have adopted this procedure have been led to do so through dissatisfaction with their iridectomies, their lack of success in securing an approximately classical coloboma—perhaps the most difficult step in combined extraction

THE INITIAL INCISION

Whatever differences of opinion there may be as to the location of the "corneal section" in simple extraction there is in my mind no room for doubt that in combined extraction it should be, throughout, in the sclerocorneal juncture, and, further, that it is advantageous to secure a not-too broad conjunctival flap These ends can be best attained by using a Graefe knife with broader blade than was for many years in vogue and by the help of the double fixation forceps

Such a section heals more readily than one which encroaches on the clear cornea, because the tissues divided are vascular and for this reason, and because, too, of the conjunctival flap, it is capable of resisting more successfully possible bacterial invasion Furthermore, it is not necessary with such a peripheral incision that it should include so considerable a part of the circumference of the cornea in order to secure easy expulsion of the lens, besides, with this section, it would seem, there is less likelihood of permanent distortion of the corneal curvature

THE IRIDECTOMY

The ideal iridectomy, as all will agree, is one which leaves a small, keyhole-shaped coloboma, with no entanglement of the iris in the ends of the corneal wound, and with the iris lying in its normal plane That even the skilful operator not infrequently fails to secure this ideal result, all, again, perhaps, will admit

At the meeting of the American Ophthalmological Society, in 1901, I exhibited what I have since called my reverse-curve iridectomy scissors As then explained,[1] the purpose of this contrivance is to enable the operator to apply the concave surface of the blades — not their convexity, as is necessary with the ordinary curved iris scissors—to the convexity of the corneal limbus, whereby a better mechanical effect is obtained, and a cleaner more perfect coloboma secured It was further explained that the scissors were intended especially for the removal of a piece of iris by a single cut — as should always be done in cataract extraction — and are not well adapted to making a large coloboma by successive snips

Extended experience with these scissors (Fig 1) in the years which have since intervened, especially in extraction of cataract, has convinced me that they accomplish, most satisfactorily, just what was claimed for them So I do not hesitate to commend their use to those who, like myself, attach importance to the securing of an ideal coloboma in combined extraction[2]

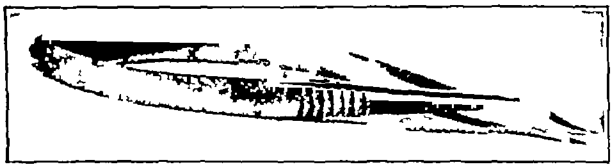

Fig 1 —Theobald s reverse curve iridectomy scissors

THE CAPSULOTOMY

The removal of a small portion of the anterior capsule has not seemed to me a matter of especial advantage, therefore I have never used the forceps contrived for this purpose Instead, I have employed a Graefe cystotome, provided with a platinum shank, which permits of ready alteration of the angle of the shank, should this be found desirable

A large rent in the anterior capsule is, I am sure of decided advantage, since it not only facilitates complete extrusion of the contents of the capsule, but renders less likely later interference with vision from capsular obstruction To secure such a rent I make a long vertical incision, carrying the cystotome well beyond the lower margin of the pupil, and cross this with a shorter horizontal one That this method really has advantages considerable experience has shown

THE DELIVERY OF THE LENS

On this step of the operation I have only to remark that too strenuous or too persistent efforts to remove small remnants of cortical matter, especially if the cataract is mature or the patient well advanced in years are, in my opinion, reprehensible, not only because of the attendant risk of loss of vitreous humor, but because, under such circumstances, these remnants will soon undergo absorption and for this reason are not liable to give rise to unpleasant consequences

That loss of vitreous" has been a comparatively rare complication in my experience I attribute in part to my having acted in accordance with this suggestion but, in still larger measure to my having for many years, always used the self-locking speculum devised by my late colleague, Dr Russell Murdoch That this instrument has not been more generally adopted by ophthalmic surgeons has long been inexplicable to me for it certainly has many and great advantages The chief of these are that it exerts a minimum amount of pressure on the eyeball, that—especially when the arms are somewhat more curved, as I have had them made (Fig 2)—it interferes practically, not at all with the operator in making the corneal section and in the subsequent steps of the operation, and that it can be quickly closed and removed, should any misadventure render this necessary I may add that, as a rule, it is not removed until the operation is completed that is to say, until the lens has been delivered, the iris dressed and the conjunctival flap put in proper position

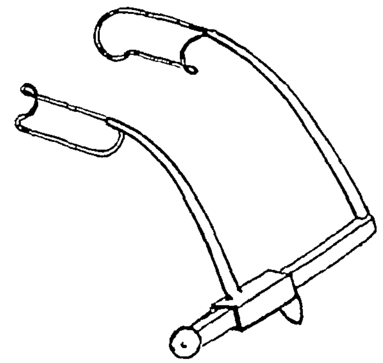

Fig 2 —Murdoch s self locking speculum

POSTOPERATIVE CARE

The most definite advance in recent years in the care of eyes after cataract extraction has been the employment of contrivances designed to prevent postoperative accidents

There are a few patients possessed of such malicious and persistent ingenuity, whether awake or asleep, that "the best laid schemes o' mice and men' cannot prevent their bringing to naught — as every ophthalmic surgeon knows to his sorrow — the efforts of the most skilful operator Such malicious individuals have, in a few instances, succeeded in circumventing the immunity from accident commonly afforded by the protective shield contrived by Dr Russell Murdoch, which I have used for many years, but, I doubt not the result would have been the same had the Ring mask, which is less acceptable to the patient, been used

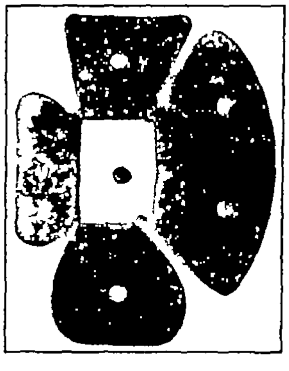

Fig 3 —Murdoch s protective shield (slightly modified) for left eye

A slight modification in the shape of the shield which I have made recently (Fig 3), seems to possess some advantages over the original pattern The shield is very light, being made of aluminum, permits of free ventilation—a point of importance—and is easily applied and kept securely in position, by means of three strips of adhesive plaster[3]

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[1] Tr Am Ophth Soc ix 318

[2] The scissors are made by Meyrowitz New York

[3] This shield and Dr Murdoch s speculum are made by [illegible] Neuhaus & Co 310 North Eutaw Street, Baltimore

[illegible]70 North

A CASE OF UNIOCULAR POLYOPIA, EXISTING IN BOTH EYES

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Patient—Dec 5, 1902 V W, a girl aged 14, was referred from the nervous to the eye clinic, Boston City Hospital, with the statement that she suffered from hysteria and complained of seeing double with left eye The vision of each eye was found to be 20/50, and diplopia was found in nasal field of left eye No paresis or paralysis of external eye muscle or muscles was noted

Treatment—December 10, homatropin was used for the purpose of testing refraction With glass correction of — 75 sph = — 50 cyl axis 180 over each eye, she was reported to me as seeing 20/20— The diplopia in left nasal field existed to same degree with and without such glass correction

December 17 The diplopia had extended to nasal fields of both eyes At that time the Maddox rod cut candle flame in vertical and horizontal meridians

December 28 She alleged diplopia over the whole field of each eye

Further Examination—In the meantime the usually named physical causes of such diplopia (incipient cataract subluxation iridodialysis double pupillary opening, astigmatism, defective muscular balance) were sought, and no satisfactory reason for diplopia was thus secured

Noting also Nettleship's statement that diplopia was met with in cases of brain tumor, she was examined with that in mind, the result being negative Her fields of vision had been charted on December 12 and 19 and were found to be symmetrically contracted fully one half

Having failed to find physical cause for her complaint, I was reminded by Dr Morton Prince that De la Tourette, in his "Traité clinique et thérapeutique de l'Hystérie," asserts that hysterical diplopia was caused by *spasm of the muscle of accommodation* such partial ciliary contraction disturbing the refractive power of the lens

I then had the patient use 1 per cent atropin solution on December 29, 30 and 31, feeling that such mydriatic would relax any ciliary spasm At the end of that time the diplopia was unchanged The strength of the drug was verified, and its action tested on others

At her first appearance at the eye clinic, I was informed that she had persistent muscular contraction of ankle and wrist muscles and that a "magnet" would immediately restore wrist to its normal condition The "magnet" was a harmless tuning fork, but 'suggestion" seemed to work perfectly

Dr Prince and I then thought hypnotic suggestion might dispel the diplopia The patient was an easy subject, but the diplopia was unchanged after the trial She was at this time seeing four objects, and was admitted to hospital and remained under observation on the medical service for some time The polyopia remained unchanged to Jan 8, 1903 She then complained of a severe head pain, after a few minutes there was what she called a 'snap," and her vision was single

It so remained until her discharge Jan 17, 1903 Then her vision was noted as 20/100, with each eye —1 25 sph = —50 cyl axis 180 vision was 20/40, and Jaeger 2 at 17 to 45 cm Exophoria of 2°— right cataphoria of 3, was noted

Jan 23, 1903 While awaiting her turn for treatment at Nervous Out Patient Department, she complained of pain in head and at once said that she saw double I took her to my office and secured these results With left eye closed she had diplopia in nasal field and across to temporal field of right eye A pencil was seen double at 20 inches, both images on a level, upright and 1 inch apart A *candle flame at 17* feet was doubled, the images being about 2 inches apart

With both eyes open she saw double An 8 inch prism, base down, over right eye with a red glass over left eye, gave her two white candle flames above and one red one below Then she complained of a pain and a "snap" and immediately said she saw four objects

I put an 8 inch prism, base down, over one eye, she at once said she saw two T's of test type above, and two below With prism, base down, on right, and red glass on left eye, she saw two white T's or candle flames above, two red ones below Putting Maddox rod over left eye she got two flames with two vertical streaks about 2 inches to left of flames A 1 inch prism, base in, brought lines through flames

Jan 21, 1903 I received a telephone message that the girl while at breakfast on that day had a severe twitching of lids, that when this ceased, pain supervened and she became blind She was brought to me about 11 30 that morning She was blind she so remained until 12 30 o'clock Then, while I was testing her for perception of light (her pupils without any mydriatic being dilated and non responsive), she suddenly said that she could see Everything in the room was described as "mixed up," and in a few minutes she was again blind After a time she had perception of light in right, but none in left eye Finally, when sight returned to the left eye, I had her read test types She saw four T's With a double prism over the right eye (left being covered) she got two T's above, two T's below With double prism over right and a red glass over left eye, she said she saw six candles, two white above, two red in the middle, two white below

After a few minutes she had a spasm of orbicularis muscles, and her winking became very rapid for several minutes, a pain came on and she said she was blind The lid twitching grew too rapid to count, her face twitched, fingers and right leg became involved and after about 20 minutes a "snap" came on and she saw double with right but did not see with left eye She had been blind from 1 to 3 15 p m After 15 minutes she had the old pain and "snap," and saw nothing In that condition I had her go to Dr Prince's office

January 28 The girl was seen at Boston City Hospital She then saw four candle flames at a distance of 14 feet, the flames being 2 inches apart, this with the left eye covered With right eye covered she saw four flames, 2 inches apart, at 14 feet

With both eyes open and with red glass over left eye she saw eight flames four white to right, four red to left, upright, and 2 inches apart

With 10 inch prism over right eye she got four flames above, four below With red glass over left eye, the upper images were white the lower were red With double prism over right eye (left being covered) she described four lights above, four below

With both eyes open and with double prism over right and red glass over left she said she saw three rows of lights After having had some difficulty in counting them, she described four white above, four red in middle and four white below All were in line vertically and horizontally, being 2 inches apart laterally

February 8 She said that the numerous images lasted until late in the day of January 28 On that day she had spasm of lids face and limbs, then eyes saw singly until February 8 when left vision was single right vision double

March 16 My notes read "No change Right is still double, left is single Much intolerance of light is present"

May 25 "Came to office Intolerance of light lasted some time Diplopia in right lasted until two weeks ago, now none exists There is severe headache of late She has had paralysis of limbs at times, keeping her in bed for days Then she would be unable to move legs At times she would have risus sardonicus, a turning of head from side to side, a turning of body on its axis, as if facing backward" (This description, save for my using the words "risus sardonicus" to explain the description of a "grin," was contributed by her mother)

I found her vision to be

O D 20/200 — 1 25 sph = — 50 cyl axis 180 = 20/40
O S 20/100 — 75 sph = — 50 cyl axis 180 = 20/40

Such correction was given for constant use To a rough test the fields were found symmetrically contracted, but no diplopia could be found in any part of either field I examined each fundus, as I had done on former occasions, and found nothing abnormal, though the retinal veins seemed relatively larger than normal

July 30 The mother wrote me that the girl had worn glasses constantly, received benefit from them, and had diplopia but once and for only an hour since she began wearing them. She described at length various body contractions and spasms, which have increased in severity

October 20 The girl reported to me She had had no diplopia since the date of the mother's letter She had ceased going to hospital had gone to a physician who diagnosed ovarian trouble, and she was going to a hospital for operation the next day

Jan 22, 1904 The mother called at City Hospital, saying the girl had been under an operation, that the ovaries were found much diseased and uterus retroflexed The girl had been confined to bed for weeks by spasm or paralysis of lower limbs but had had no double images since she visited me in October

The many cases of polyopia noted in ophthalmic literature are well summarized by Ord and Adams, Gunn and Anderson,[1] Thompson,[2] Tilley[3] and DeSchweinitz[4]

In several of these cases, paresis or paralysis of abducens was present In three of the cases a post-mortem examination disclosed gross lesions in right cerebral hemisphere

One of the cases, Adams',[1] was excluded, as spurious, and the author says

> Up to the present time I have never met with a case in which uniocular diplopia, in an eye that was physically perfect, was alleged to exist, except under circumstances where there was strong ground for doubting the validity of patient's statement

Thompson says [2]

> The primary paretic squint and its necessary diplopia excited in a disturbed brain an impression which culminated in a true visual hallucination

Abercrombie, in a case of monocular diplopia, in which a post-mortem showed a large abscess in region of lateral ventricle, says

> If each optic nerve is connected with cortex of both hemispheres of brain, then it is conceivable that in such a case as this the right hemisphere did not act in perfect unison with the left in interpreting impressions received on the right retina, whence her double vision, but on this hypothesis she ought to have double vision with left eye alone also, which she did not have
>
> In the present state of our knowledge we cannot say more than that she had an impaired power of visual discrimination

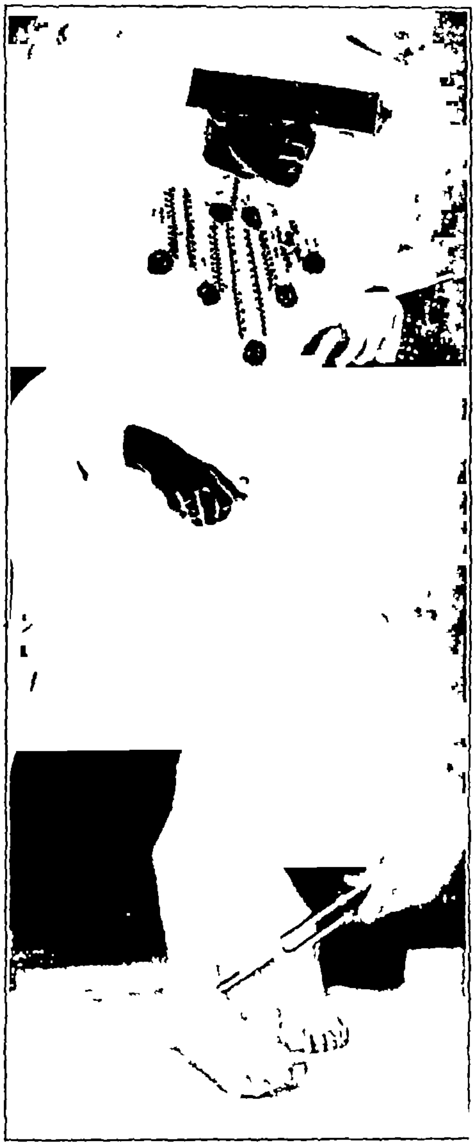
Thompson[2] and Tilley[3] incline to Fontan's views expressed at the Ophthalmological Congress in 1885

> The image formed on the macula is received by the nerve which divides at the chiasm, so that two similar impressions are conveyed to the corpora quadrigemina, or implanted on the visual center at the cortex Ordinarily the two pictures are united by a cerebral act or sympathy, which exists between the functions of the two brains If however the joining of the two pictures does not immediately take place, two images is the result

De la Tourette and Parinaud, in cases of hysterical polyopia, unreservedly give irregular contraction or spasm of the ciliary muscle as the cause of polyopia Were such the case a lessening or removal of the spasm of accommodation should cause a change in the degree of the polyopia or its absolute disappearance

It will be noted, however, that a prolonged use of atropin did not modify in the least degree the position of the images in this case In the cases cited the monocular or binocular polyopia was constant, betraying no such lightning-like changes from single to double or from double to multiple images as noted in our case

The contraction of ciliary muscle could hardly explain these phenomena, and still less could it account for the amaurosis which existed for part of a day We are justified in assuming that hysteria is at the bottom of the case — we do not exclude the possibility of cerebral disease — but no explanation heretofore given accounts for her polyopia



Wrist and ankle contractions in a young woman suffering from uniocular polyopia existing in both eyes

LATER DEVELOPMENTS

The foregoing was written and read by me, in 1905, before the New England Ophthalmological Society with Dr Prince commenting on the case Since then until March, 1912, my notes have reposed in an office drawer

In 1906 the mother wrote me that the girl had been free from eye trouble [illegible] particula [illegible]

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1 Ord and Adams Tr Ophth Soc U Kingdom ii [illegible] also Gunn and Anderson ibid iv [illegible]
2 Thompson Tr Ophth Sec A M A, 1891
3 Tilley In same publication 1892
4 DeSchweinitz Tr Am Ophth Soc 1894

for over a year, save for one attack of double vision lasting half an hour She added, however, that the girl suffered greatly from temporary paralysis of right leg and immobility of wrist for a few weeks after a heavy thunder storm I lost all trace of the girl until a month ago, then I found her address, and asked mother and daughter to call at my office They did so late in February and I promised to examine the eyes of both after a short time

On March 13 I wrote them to call, on which date I found the following

R V = 13/200 — 1 50 sph = — 75 cyl axis 180 = 20/30 +
L V = 20/200 — 1 25 sph = — 75 cyl axis 180′ = 20/30 +

She read with such correction Jaeger 3 at 8 to 10 inches, representing her near and far points Color vision was good The fields of vision were the same as in 1903, extending upward 20 degrees in each eye, 10 degrees outward, 35 and 10, respectively, in right and left eye below, and 35 and 30 inward

NOTE BY NEUROLOGIST (DR MORTON PRINCE)

March 13, 1912 The case of the patient, V W, first seen by me in the neurological clinic, Boston City Hospital, in 1902, was then diagnosed as a perfectly typical, in fact classical, example of hysteria She exhibited a large number of the usual stigmata Among these stigmata were retraction of the visual fields, polyopia, temporary attacks of blindness and certain "crises," the exact nature of which I have forgotten at this time Many of the symptoms would come and go with great suddenness The contractures were easily removed by suggestion in the form of a fictitious magnet and could be reproduced with equal facility This was frequently done for purposes of demonstration The patient was shown to Dr Pierre Janet, who was on a visit to Boston about that time, and he concurred in the diagnosis, about which there had never been any doubt She was then lost sight of for a number of years

This date (March 13, 1912) she was again examined, at the request of Dr Bossidy, with the following result Impaired sensation (including touch, pain and temperature) over the lower right leg in the so called 'stocking" form The upper limit of the anesthesia was a little below the knee,' but this boundary was not a symmetrical line but irregular The left knee jerk was normal but the right was absent This very curious fact had been found when the patient was first seen in 1902 No explanation has ever been offered Both plantar reflexes and both ankle jerks were absent There was no paralysis or contracture, no other physical stigmata The diagnosis remains unchanged (I did not tire her by using anything more than Priestley Smith's simple ophthalmometer) Her eyes internally appeared normal, save for slight relative increase in diameter of veins The vision with glass correction was no poorer than in 1904 Her muscular balance was practically perfect She tried to do fine sewing for three or four hours a day and her complaint of eye fatigue was due to the continued convergence of the eyes at 9 inches

The illustration is from a photograph taken early in 1903, showing the wrist and ankle contractions Up to 1903, when her ovaries were removed the patient had never menstruated, which must account for the hysteria, just as the latter may be the cause of the eye phenomena

Dr Prince and I agree that no explanation ever given for polyopia fits this case, and Janet of Paris, after seeing the girl in 1904, acknowledged that he disproved by her the theory of ciliary contraction

We expect later to experiment on her, through hypnotism, trying to find in some childhood dreams or scares, as she will then show them to us, something to aid us in our search for a "cause"

She is bright, good-natured and strong-minded, and aside from some indigestion, in good health Though pale, she is muscular, and may marry soon a man who knows all about her case Will marriage lessen the hysteria of many years' duration by a lessening of her general nervous condition? We hope to be able to answer this question later

410 Boylston Street

ABSTRACT OF DISCUSSION

Dr A E Davis New York Monocular diplopia or polyopia, not due to some local condition of the eye, is of rather rare occurrence, and is a phenomenon thus far not satisfactorily explained The local conditions giving rise to it are the following (1) most commonly, incipient cataract, (2) irregular astigmatism of the lens, due to spasm of the ciliary muscle, or irregular astigmatism of the cornea, due to corneal opacities, (3) a new formed or physiologic macula in cases of squint of long standing following operation of straightening This condition as a rule lasts but a few days or weeks at the most The general conditions are (1) hysteria and (2) organic disease of the brain The local conditions are easily understood, with the exception perhaps of the possibility of a new formed macula in cases of squint of long standing Dr Verhoeff himself in the endeavor to explain the occurrence of this monocular diplopia in such cases assumed that there are three centers in the brain almost entirely distinct from each other one for the binocular perception of relief and two for monocular vision, one of the latter corresponding to the right and the other to the left eye Of course this explanation takes us from a consideration of the local to that of the general causes I may say that Verhoeff's view in this respect corresponds in a measure with Fontain's as to the cause of monocular diplopia

J I Adams pertinently asks Is it possible for a person with an eye in all respects normal as regards its physical condition to 'see double' with that eye, which means that a single retinal image is to give rise to a double mental impression?" Just how the double vision is caused even where there is organic brain disease is as yet a matter of theory and speculation

After reading the present case and reviewing others cited in literature we are forced to the view, excluding, of course local eye conditions, that the vast majority of such cases are due to hysteria, and a few to organic disease of the brain A striking coincidence in most of these cases has been a paresis or paralysis of the sixth nerve Dr Bossidy's case seems to be an exception as regards any weakness or paresis of the sixth nerve

SOME EARLY DIAGNOSTIC RETINAL SIGNS OF ARTERIOSCLEROSIS AND CHRONIC BRIGHT'S DISEASE*

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The controversy that exists as to the identity of distinct types of chronic Bright's disease, such as chronic parenchymatous nephritis and chronic interstitial nephritis, continues, and by some it still is considered a debatable point whether the arteriovascular changes are primary or secondary to the renal changes

McCrae[1] says that neither chronic parenchymatous nor chronic interstitial nephritis ever exists alone inasmuch as "interstitial change never exists without an accompanying parenchymatous change, and parenchymatous change cannot exist long without interstitial alteration following or accompanying it" He doubts the development of a primary contracted kidney

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* Because of lack of space this article is abbreviated in The Journal The complete article appears in the Transactions of the Section and in the author's reprints A copy of the latter will be sent by the author on receipt of a stamped addressed envelope

[1] McCrae in Osler's Modern Medicine 1909 vi

Strumpell[2] considers chronic interstitial nephritis as an atrophy of the renal parenchyma which begins in a previously healthy kidney and is not necessarily the ultimate termination of a chronic diffuse nephritis, though he describes a secondary contracted kidney which he considers simply a more advanced form of chronic diffuse nephritis His distinction is further explained by the following taken from his description of the secondary contracted kidney

> Since the kidneys in spite of their granulation have on the whole a normal size, we can infer from this and from the clinical course that they were previously enlarged Therefore the name of secondary contracted kidney is quite suitable in opposition to the genuine contracted kidney which represents a much more chronic form of renal atrophy In the latter the contraction takes place in an extremely chronic manner in a kidney which was previously normal, while in the secondary contracted kidney the cicatricial process develops in a kidney which was previously the subject of diffuse disease

A similar view is held by Anders,[3] Edwards,[4] Kelly[5] and many others who might be quoted

Dieulafoy[6] substantiates the view concerning the coexistence of interstitial and parenchymatous changes by saying that we may find glandular lesions complicated by interstitial and vascular changes, or interstitial and vascular changes complicated by glandular lesions He believes that the nephritis taken as a whole is diffuse and that every case of chronic nephritis should be called Bright's disease whether the glandular or vascular changes predominate

Herrick[7] says that morbid anatomists and pathologists are far from unanimous in their descriptions of the various types or groups of chronic nephritis, and that physicians are not always able to make a differentiation that is satisfactory from the clinical point of view, or that holds good in the light of post-mortem revelations While admitting the coexistence of parenchymatous and interstitial changes in every case of chronic nephritis, and that the process in every case is really a diffuse one, he says

> There are two groups of chronic inflammations of the kidney whose clinical features present such striking contrasts that one feels warranted in making separate classes of these groups, and the justification of this seems apparent when one sees that corresponding to these two types kidneys are found differing as markedly as do the clinical manifestations To the one form, characterized by edema with abundant albuminuria and cylindruria, the name chronic parenchymatous nephritis has been most often applied, and to the other, with its marked cardiovascular changes, its relatively slight albuminuria and cylindruria, with its abundant urine of low specific gravity, its frequent uremia, the term chronic interstitial nephritis is given Often, however, the disease refuses to conform to the picture of a classical type, though there are enough of the fairly typical cases to justify the classification that has been made

Between these two extreme types described by Herrick[7] and many others we have numerous varieties of intermediate types which Dieulafoy[6] calls mixed nephritis and these constitute the most frequent form of Bright's disease Dieulafoy has also coined the word 'Brightism,' which he applies to the mild form of chronic Bright's disease in which the urinary depuration is insufficient, and mild symptoms only are present

Concerning the relationship of general arteriosclerosis to Bright's disease, much has been written Sutton and Gull[8] advanced the theory that lesions of the small contracted kidney are due to a local form of general arteriosclerosis, and to this morbid state they gave the name of arteriocapillary fibrosis Dieulafoy[6] says that this theory of general arteriosclerosis, which has been confirmed by many post-mortem examinations does not explain all the cases of nephritis in which the arteries are chiefly affected, and he quotes Brault to this effect

> Instead of subordinating the lesions of the kidneys to the general arteriosclerosis it is more rational to subordinate the lesions both of the kidneys and all other organs to one prime cause (gout, lead, old age heredity etc) Besides the importance of the arterial lesions in their relation to the contracted kidney has been much exaggerated

Herrick[7] considers the cardiovascular changes of great importance from the standpoint of the diagnosis, and says that it is a rare thing to find a case of chronic interstitial nephritis permitting of diagnosis in which the cardiovascular changes are not more or less well pronounced But he further says that "differentiation between the primary nephritis and the secondary arteriosclerotic vascular and cardiac changes may not be possible "

Edwards[4] says that the etiology of chronic interstitial nephritis is essentially that of arteriosclerosis, with which contracted kidney has a threefold relation, (a) arteriosclerosis may cause the arteriosclerotic kidney, (b) contracted kidney may cause arteriosclerosis, or (c) both may result from a common cause The noxa or toxin reaches the kidney through the blood stream

Anders[3] says that arteriosclerosis and Bright's disease may develop independently of one another, and yet simultaneously in consequence of the action of a common cause He considers chronic interstitial nephritis as but one lesion of a generalized process of fibrosis

Kelly[5] says that chronic interstitial nephritis should not be considered as a disease of the kidneys alone, not even primarily, but a disease of the cardiovascular system, and that there is always a more or less wide-spread arteriosclerosis, hypertrophy and later dilatation of the heart

Strumpell[2] says that the theory advanced by Gull and Sutton[8] and others that the vascular disease always represents the primary process to which the renal atrophy is only secondary, is untenable, and says that we often find a most pronounced contraction of the kidneys without any vascular changes sufficient to explain the atrophy

Roderer[9] says that chronic interstitial nephritis is an inflammatory disease of the arteries He further says that when the inflammation of the blood-vessels in the kidneys extends to the parenchyma of the kidneys, then an examination of the urine will show casts and albumin The fact that the examination of the urine shows disease, he believes to be the reason that chronic interstitial nephritis has been called a disease of the kidneys

Ophuls,[10] in discussing subacute and chronic nephritis as found in 1,000 selected necropsies, says that Gull and Sutton[8] deserve great credit for having first suggested that there is a disease in which the arterioles throughout the body are altered, which constitutes the general morbid change of which contraction and atrophy of the kidneys are part and parcel He concludes with the statement that a careful study of his necropsies cannot leave room for doubt in regard to the fact that the ordinary red granular, contracted kidney is the result of general arteriosclerosis, and that in many of these cases the general arteriosclerosis is much more important in regard to the condition of the patient than the renal lesion which he may have at the same time He further says that general arteriosclerotic lesions develop coexistently with arteriosclerotic lesions of the kidneys, but that there is no strict interdependence between the two processes His conclusions are as follows

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[2] Strumpell Text Book of Medicine 1912
[3] Anders Text Book of Medicine 1909
[4] Edwards Text Book of Medicine 1909
[5] Kelly Practic of Medicine 1910
[6] Dieulafoy Text Book of Medicine 1911 II
[7] Herrick Osler's Modern Medicine 1909 vI
[8] [illegible]
[9] [illegible] Leo Chl [illegible] Feb
[10] [illegible] 1872 [illegible] p [illegible]

> At the present time in many cases too much attention is paid to the kidneys clinically and anatomically The so called primary or genuine contracted kidney represents a disease of the kidney which is the result of arteriosclerosis in the terminal arterioles in this organ, is closely associated with general arteriosclerosis, and cannot be properly understood without due consideration of this fact

The relation of hypertension of the arteries and enlargement of the heart to arteriosclerosis and chronic Bright's disease has also been the subject of extended study Thus Dieulafoy[9] says that cardiac lesions may exist in all forms of chronic nephritis, but that the lesions do not always show themselves by hypertrophy of the heart, and he lays great stress on this point because it is too often said that the heart is always enlarged The heart may be smaller than normal and may at first sight appear to be healthy, yet histologic examination shows advanced arteriosclerotic changes "Very marked hypertrophy may coexist with very moderate arteriosclerosis, and reciprocally the arteriosclerosis may be advanced while the heart is not hypertrophied" He concludes with the theory that the cardiac hypertrophy is not due to the sclerotic lesions but to the increased arterial tension caused by the more or less general arteriosclerosis and the contraction of the small vessels due to toxic influences, a view also entertained by Strumpell[2]

Edwards[4] says that high tension is one of the most constant and early symptoms of chronic interstitial nephritis (a view also entertained by deSchweinitz), and its early occurrence leads some writers incorrectly to regard contracted kidney as a disease of the arteries rather than of the kidneys

Kelly[5] says that increased blood-pressure is an early and valuable sign, and that arteriosclerosis, accentuation of the aortic second sound and hypertrophy of the heart, especially the left ventricle, may be found in all forms of Bright's disease, but in none of the forms do they so dominate the clinical picture as in primary chronic interstitial nephritis

Jones[11] maintains that hypertension is the primary trouble that leads to both cardiac hypertrophy and general arteriosclerosis, and that hypertension of the arteries, such as sometimes exists in valvular disease, does not apparently lead to arteriosclerosis but to hypertrophy of the media of the small arteries He also contends that general arteriosclerosis cannot be the direct cause of the hypertension which produces the cardiac hypertrophy He believes that general arteriosclerosis is invariably of toxic origin, which explains the evidences of inflammation of the larger arteries and in the kidneys

Taussig,[12] in discussing arterial blood-pressure, says that it is astonishing how often we find pressures normal or subnormal in patients with greatly thickened or even calcareous arteries He gives as one of the conditions responsible for the occurrence of hypertension, toxins that directly raise blood-pressure and at the same time have an injurious effect on the arterial wall Where the action of these toxins is long continued, the persistent hypertension caused by them will lead to general arteriocapillary sclerosis

While opinions may differ as to the exact relationship existing between general arteriosclerosis and chronic Bright's disease, the fact remains that there are certain manifestations and signs more or less common to the two conditions, and evidence seems to be accumulating in favor of the theory advanced by Gull and Sutton[8] that chronic Bright's disease, and in particular that type of the disease which has been termed chronic interstitial nephritis, is a manifestation of general arteriosclerosis in which the kidney symptoms are the predominating ones Furthermore, as Dieulafoy[9] and more recently Ophuls[10] have pointed out, no advanced general arteriosclerotic changes exist without an inflammation of the kidney to a more or less extent Whether the renal lesion will be a predominant factor depends entirely on the condition of the kidneys and their power to resist the effect of the toxin which is the causative factor in the production of the vascular alteration

The hemorrhagic retinitis of a general arteriosclerosis, and the typical albuminuric retinitis of chronic Bright's disease are familiar pictures described in text-books, but it is to the less-pronounced retinal lesions which may or may not attract the attention of the patient, and which appear early in the history of the disease, to which attention is especially directed These lesions frequently overlooked or misinterpreted, and often discovered by accident, are sufficiently suggestive to warrant a suspicion of general arteriosclerotic changes with accompanying kidney inflammation, and the propriety of more extended study of the case

Some of these earlier retinal changes and especially those in a more advanced state have been described by numerous writers Thus Alleman,[13] in discussing the retinal symptoms of vascular degeneration mentions spasm of the retinal vessels as shown by localized transient contractions, (also reported by Zentmayer[14] and Greenwood[15]), tortuosity of the smaller retinal vessels, and a multitude of minute glistening dots in the retina which occur during the period of high pressure and disappear with the return of the normal arterial pressure Weeks,[16] in describing arteriosclerosis of the retinal vessels, mentions the delicate white lines at the borders of the arteries in the greater number of cases, loss of transparency of the vessels, and the appearance of hemorrhage and exudation In discussing albuminuric retinitis, he divides the condition into two classes (1) those cases not preceded by thickening of vessel-walls, which will include cases occurring as a result of acute parenchymatous nephritis in which the *changes in the kidneys* precede those that occur in the retina, (2) those cases in which the hemorrhage and exudation are preceded by changes in the walls of the vessels (arteriosclerosis), and in this class are those cases accompanying chronic interstitial nephritis in which the changes in the retina may precede the appearance of albumin in the urine

In discussing the retinitis of Bright's disease, deSchweinitz says that small, discrete and sharply separated white spots, which appear most numerous in the region of the macula, are among the early signs Again he says, in the consideration of high arterial tension,[18] that if the cause of persistent high arterial tension is sufficiently prolonged, retinal alterations will occur at any age at which the pathologic condition necessary to excite them may arise He describes three early indications, viz, (1) a markedly cork-screw appearance of certain arterial twigs, (2) a flattening of a vein where it is in contact with an artery, (3) an appearance of the nerve-head often loosely described as congested Concerning the significance of the signs, he says that they have more than a local significance, and one of the most important indications is that which refers to arteriosclerosis He calls especial attention to the increase of the blood-pressure as an early symptom, and says that hypertension is not infrequently the first sign of beginning renal or vascular degeneration

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[11] Jones Deutsch. Arch f klin med 1908 xciv

[12] Taussig Interstate Med Jour June 1911

[13] Alleman Am Med February 1904

[14] Zentmayer Tr Sect on Ophth A M A 1906

[15] Greenwood Tr Sect on Ophth A M A 1904

[16] Weeks Treatise on Diseases of the Eye 1910

[18] de Schweinitz Ophth Rec August 1900

While the more pronounced retinal lesions in general arteriosclerosis and chronic Bright's disease have been frequently described, but little reference, other than that here quoted, has been made to some of the very earliest *manifestations, and in particular to the diagnostic* importance of these early lesions when associated with hypertension of the arteries While deSchweinitz[18] apparently makes a distinction between the retinal lesions of general arteriosclerosis and chronic Bright's disease, he describes lesions that are common to both and which are accompanied by hypertension which seems to be an etiologic factor In the conclusions on which this paper is based emphasis will be placed on the supposed fact that the very early retinal lesions are always due to toxic influences and attending, persistent, comparatively high blood-pressure, whether the process is eventually to show the nephritic symptoms to be predominant or not, and further, that the very earliest retinal manifestations do not give any decisive information as to what direction the disease will take later

Particular attention is here directed to the almost indistinguishable small white dots, few or perhaps many in number, which appear in the neighborhood of the disk, and most frequently in the macular region, the haziness and often a delicate hyperemia of the disk, isolated, faintly milky colored areas in the retina, the beaded appearance of some of the larger vessels and alteration in the character of terminal vessels (the cork screw appearance described by deSchweinitz), and, as important as any indication, the appearance of scotomas either with or without visible retinal alteration Any two or all of these lesions may coexist, and any one or all may exist with but little or no alteration in the vision as detected by the patient Usually, however, the patient detects a slight impairment of the vision which prompts him to seek relief, or, as is frequently the case, the condition of the retina and its effect on vision are discovered by accident, as in the routine examination for glasses

As has been pointed out by Ophuls[10] and others, it is difficult, if not impossible, to draw any distinct line of demarcation between general arteriosclerosis and chronic interstitial nephritis, for while clinically one or the other may seem to be of most importance, autopsy seems to show that the two conditions are present together, and that they both come under the heading of arteriovascular change, due to some toxin It is equally difficult to say whether the eye lesions under consideration should be considered as a manifestation of general arteriosclerosis either in which the nephritic symptoms are to be more or less pronounced, or in which the nephritic lesion is secondary and of minor importance inasmuch as the early retinal lesions are common to both types of cases That these eye lesions perhaps, are not always present is admitted, but from the facts that arteriosclerosis is generally found to involve the terminal arteries, and that the retinal tissue is particularly susceptible to toxemias, it is quite possible that the lesions may be found in a large percentage of cases of arteriosclerosis if they are looked for by a painstaking ophthalmoscopic examination by the direct method with the patient's pupils fully dilated When found, as they often are accidentally, they are of much diagnostic and prognostic importance and should lead to such attention of the patient as will tend to retard the progress of the general process

The coexistence of a relatively persistent high arterial tension is especially significant, as pointed out by deSchweinitz,[17] for the retinal signs under consideration go hand in hand with the continuous high arterial tension of arteriosclerosis, and when coupled with such urinary findings as a low specific gravity and even the occasional appearance of casts, the diagnosis is more complete Cardiac hypertrophy and accentuation of the aortic second sound are manifestations which occur late, as a rule, and only add to the significance attached to the earlier findings

Stengle[22] recognizes the importance of ophthalmoscopic examinations in high blood-pressure cases when he says that the ophthalmoscope may reveal positive evidence of vascular disease

The accidental discovery of the lesions justifies the opinion of Marple,[23] who says

> It cannot be too strongly emphasized that examination of our middle aged patients for glasses should not be done in a perfunctory manner, but that the condition of the retina should be carefully investigated Such an examination can not be made by the indirect method and not seldom a mydriatic must be used.

The importance of noting the condition of the retinal vessels is also emphasized by Coates[24] who says that retinal change remains the best indication of the state of the vessels generally which we possess

We must not, however, forget that similar lesions arise from other causes Thus Bichelonne[25] reports a case of neuro-retinitis (without hypertension) simulating albuminuric retinitis, occurring in a healthy man, aged 22, after almost continuous writing for two days and nights The case ended in steady and complete recovery, but the suggestion is made that we should bear in mind that in renal retinitis eye-strain may be a very important causative factor With due propriety it may be added that the eye lesion, even though significant, should not be considered alone in arriving at an opinion as to the etiology and pathology of the condition

The part played by high blood-pressure in the production of these lesions is attested by deSchweinitz,[18] who calls attention to the increase of blood-pressure which always accompanies the early stages of arteriosclerosis, and he emphasizes the utility of the sphygmomanometer It is also discussed by Barker and Haines,[26] Black,[27] Jackson[28] and Barrett[29] The latter, in discussing the ophthalmoscopic appearances with high blood-pressure, relates the case of a woman of 23 years with a blood-pressure of 240 mm of mercury, and entire absence of ophthalmoscopic changes, who many months later showed abundant evidences of albuminuric retinitis, which would seem to indicate that the retinal lesions occur only after persistent high blood-pressure

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[22] Stengle Am Med Jan 2 1904
[23] Marple Med Rec March 16 1907
[24] Coates Ophthalmoscope 1906
[25] Bichelonne Ann de Ocul December 1904
[26] Barker and Haines Am. Jour Med S [illegible]
[27] Black Tr Sect on Ophth A M A [illegible]
[28] Jackson Colorado Med February 1910
[29] Barrett Australian Med. Jour, 1910 xv

The theory that hypertension may precede the general arteriosclerotic changes seems borne out by the findings of Ophuls,[10] who considers the increase in the blood-pressure as due to toxic influences, a view that is also entertained by Jones [11] In support of this view, Widal[30] considers the retinitis as being ureic, and zur Nedden[31] accounts for an involvement of the retina in nephritis through cytotoxins developed in the kidney Schieck,[32] in discussing renal retinitis, says that he has found marked changes in the nervous elements of the retina but no trace of alteration in the blood-vessels, and Shiba[33] contends that the condition is due to some alteration in the state of the blood

Concerning the effect of the earlier retinal lesions of arteriosclerosis on vision it is readily understood that the size and the location of the lesions have much to do with the extent of visual disturbance In those cases in which there are spots or milky patches in the region of the macula there is usually some failure of vision, whereas in those cases in which the lesions are small and away from the macular region there may be no disturbance of vision noticeable to the patient or determinable by chart tests, though the perimeter will disclose scotomata In fact, relative scotomata, varying in shape and size, often may be discovered in those cases in which there are persistent high blood-pressure and but faint ophthalmoscopic signs in the retina to account for the lesion It is assumed that the scotomata are produced by the same toxic influences, acting through the blood, and affecting the nervous elements of the retina, which are responsible for the hypertension and later the arteriosclerotic changes It is also quite probable, as Garrod[34] says, that the toxin, in a sense, is of uremic origin, for there need be little hesitation in asserting that high arterial tension is a natural outcome of uremic poisoning

While the retinal lesions, coupled with a persistent, relatively high blood-pressure, alone are significant of arteriosclerosis, the urinary findings add materially to the certainty of the diagnosis The presence of albumin and casts in the urine has long been recognized as of great diagnostic importance when associated with other symptoms, though Dieulafoy[6] thinks that their importance has been exaggerated He further says that hyaline casts are unimportant, though granular casts always indicate a lesion of the kidneys McCrae[1] says that a hyaline cast is an indicator of disease, and Garrod[34] contends that hyaline casts indicate the slightest degree of renal mischief The retinal lesions under consideration frequently occur before there are urinary findings of significance, and it is only later that albuminuria and casts, especially granular, are found in the urine and then the retinal lesion is also advanced so that the picture is quite characteristic and in keeping with classical text-book descriptions

The value of the sphygmomanometer in determining the blood-pressure in eye cases has been emphasized by numerous writers including deSchweinitz,[18] Dunn,[35] Black,[27] Barker and Haines,[26], Semple,[36] Veasey[37] and others Jackson,[28] in discussing blood-pressure from the standpoint of the ophthalmologist, says that not only should ophthalmoscopic symptoms of increased blood pressure lead to the use of the sphygmomanometer, but an elevated reading with the sphygmomanometer should call for an ophthalmoscopic examination

The fact that eye signs are often detected during the course of an examination for the correction of refractive errors, or may be discovered otherwise in an accidental manner, shows the importance of giving all cases coming into the hands of the ophthalmologist a careful opthalmoscopic examination, and many general physicians may obtain corroborative evidence in their arteriosclerosis cases by obtaining a report as to ophthalmoscopic findings The further fact that these ocular signs are among the very earliest symptoms, susceptible to detection by careful examination, is important from a prognostic standpoint, because the earlier the diagnosis can be made the more probable it is that good results will be secured from treatment

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ABSTRACT OF DISCUSSION

Dr I T Rogers, Providence, R I The detection of slight ophthalmoscopic changes, such as have been described by the essayist, is largely influenced by the personal equation of the examiner, and too much stress must not be laid on changes in the color of the arteries brilliancy of the light streak, tortuosity of the vessels or loss of translucency, as these details are always comparative, and what may be apparent to one is not always visible to equally competent observers, and if there is a loss of vision without apparent cause it is easy to imagine that any one of these conditions may be present, and to it may be ascribed the diminution of sight

I would add to the danger signs enumerated by Dr Bulson changes in acuity of vision, whether or not associated with a fundus lesion I do not believe that the problem will be solved without the presentation of proof attained by a collective investigation and a study of carefully kept case records You and I may believe that we can detect in the fundus signs of approaching arteriosclerosis, but the majority of the profession do not, and demand proof

Last year at Los Angeles I reported on the subsequent histories of a large number of cases of retinal hemorrhage, and each case had been carefully traced over a period of from three to ten years, and if living the present condition of the patients' health was noted, and if dead, the cause of death I found that 80 per cent of these individuals died within a few years or suffered from ill health, and that nephritis or arteriosclerosis was the exciting cause in three quarters of them Yet, when I argued that these findings warranted the assumption that even slight retinal hemorrhages, whether due to diapedesis, rupture or inflammation, were worthy of our attention, exception was taken by several members who stated that they did not believe the condition was at all serious, because they had seen many cases, and so far as they knew, the patients were in good health The trouble was, they did not know, and the two or three cases reported by Dr Bulson are worth a thousand reported from memory as in good health, so far as they know

Gentlemen, this is no dream, there is a period preceding the invasion of disease, a period of incubation as distinct as the aura of migraine, and nowhere is it more likely to be seen than in the delicate structure of the eye, and our success depends more on an ability to detect these premonitory signs and to prevent, than to diagnose the well developed condition and to attempt to cure it

If Dr Bulson's essay will call attention to this it is well worth while If it should result in a systematic effort on the part of this Section to collect and publish the results of a collective investigation, it would prove beyond contention the essayist's statement that the recognition of these early symptoms will result in the saving of life

Dr S D Risley, Philadelphia The association of certain ocular affections with kidney disease furnishes one of the most critical and important chapters in ophthalmology, since the question of a more or less serious prognosis is always presented

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30 Widal Ann de Ocul 1910 cxliii.
31 zur Nedden Arch. f. Augenh., 1909 lxiii
32 Schieck Wien med Wchnschr March 14 1908
33 Shiba Klin Monatsh f Augenh April 1908
34 Garrod in Osler's Modern Medicine vi
35 Dunn Arch Ophth November 1908
36. Semple Am Jour Ophth January 1910
37 Veasey Jour Ophth and Oto Laryngol May, 1911.

The almost constant association of cardiovascular disease adds not only to the complexity in such cases, but to their gravity It is not always certain that the retinal disease is secondary to the affection of the kidney, since in the early stage the retinal edema, the full and tortuous veins and the beginning sclerosis of the retinal arteries, accompanied by high blood pressure and other evidences of general cardiovascular disease together with kidney derangement, are probably common phases of a general disorder, which finds its beginning in the general vascular tree I have seen many examples of the very serious character of this symptom complex from the standpoint of prognosis, in patients with failing vision, presenting the ophthalmoscopic picture I have described, but who considered themselves in good health In one striking example, the man came for a change of glasses to aid his impaired vision, refused to see the advice of his physician, claimed that he was in perfect health, but nevertheless suffered an attack of cerebral apoplexy ten days later It is no uncommon experience to find ophthalmoscopic evidence of high arterial tension, in patients with headache, impaired vision, urine with high specific gravity, a trace of albumin, indican present hyaline and granular casts In these early stages of arteriosclerosis before atheroma of the arteries has advanced, there is danger of rupture of the blood vessels There are frequently hemorrhages in the retina and choroid It is important for us as ophthalmologists not only to recognize these cases, but to recognize them in their relationship to cardiovascular disease, of which both the kidney affections and the ocular symptoms are but a sign

DR OTTO LANDMAN, Toledo, Ohio Barker of Johns Hopkins, in a paper published a few years ago, was one of the first writers to call the attention of the profession to the fact that we can have an exophthalmos with high arterial tension and fatal lesions of the kidney without any decided changes in the retina A short time ago I saw a patient who was referred to the family physician, who published a report of the case This woman had been a patient of mine for a number of years and had a refractive error She was the mother of a child of about 1½ years of age She came complaining of headaches and some dizziness, and thought perhaps that there was a necessity for changing the glasses I examined her carefully, and concluded that it could not be the glasses that were producing the trouble She was myopic, had a posterior staphyloma, but there were no retinal changes Usually I make an examination of the kidneys and take the blood pressure The blood tension at that time was 280 She was about 27 years of age There was a marked exophthalmos, and examination of the urine showed that she had a marked nephritis Had I not known that albumin was present and that there was associated with this a high arterial tension, I should have declared that the fundus was normal, but there was just a slight haziness of the disk, and I concluded that that was the result of high tension or changes in the vessels, but I could find no such changes whatever She had a compensatory cardiac hypertrophy and in eight months she was dead What I would like to know is how frequently we find exophthalmos associated with high tension and renal changes?

DR. ALLEN GREENWOOD, Boston An important part of the work of the ophthalmologist is the examination with the ophthalmoscope of the fundi in every case that comes before him We should bear in mind that we may frequently find in the examination of the fundi of our presbyopic patients early changes in the arteries when there is absolutely no evidence of any trouble, general, or in the kidneys, but it has been my experience if these early changes are found that the patient sooner or later will develop changes in the kidneys

Nine years ago I published a paper on albuminuric retinitis and a year later read before this Section a paper on obstructions of the retinal arteries so that since then I have followed this subject of arteriosclerosis with interest In my work at the Boston City Hospital, besides the ordinary eye clinic, I have to look out for all the consultation eye work for nearly a thousand ordinary bed patients, and so see a good many cases of arteriosclerosis in the early stages accompanied by high arterial tension, and hardly a day passes in my private practice that I do not send a letter to the family physician of some patient stating that I find this condition. I think physicians today are awakening to the importance of these suggestions from ophthalmologists, and this thorough examination under some mydriatic of every patient with presbyopia for lesions of the vessels of the fundus is one of the important services we can render to the community

DR. WENDELL REBER Philadelphia The phase of the subject on which I wish to speak is the significance of the earliest symptoms I was interested in what has been said about people who come in for correction of their refraction The pressure in the retinal vessels in many cases is practically normal When that has once been ascertained the deviations can be easily determined The ophthalmologist often sees the first changes before the internist expects them On the other hand, we must not forget the dictum of Olvier, that arteriosclerosis is a general disease with a tendency at times to localize itself so that we may not see retinal changes and yet there may be marked retinal disease This occurs oftener than we believe I am inclined to believe that the general practitioner is growing wiser, and we do not see the changes first as often as we used to, in the prenephritic stage when we can be of the greatest service to the patients, that in that which precedes which Dr Risley has called the physiologic vices of this day and generation producing high blood pressure in a study of the arterial and venous crossings of the fundus we have failed to seek for the little localized areas of edema of which Dr Bulson speaks These are found before the stage of the cork screw artery or the brick red disk Another class of cases which I have had the pleasure of studying is incipient locomotor ataxia which shows elongation in the arteries and veins It is one of the commonest observations in my office Presbyopes who show unequal accommodation and sluggish pupils will almost invariably show pressure at the retinal vein crossings I agree thoroughly with Dr Rogers in the matter of individual interpretation in the early stages of this disorder If the index of refraction is normal, we do not see the walls of the vessels in the retina but the color of the blood column and only when diseased do we see the vessel itself The moral of the paper is that the early changes are the important ones for once established these patients are doomed, not necessarily in two years, but they are doomed to a life of reduced efficiency and will frequently be compelled to retire from active life and there is little we can do to restore them to their full efficiency

DR. ALBERT E BULSON JR, Fort Wayne, Ind My principal object in presenting the paper was to call attention to the very early ocular manifestations of arteriosclerotic changes whether such changes are known as general arteriosclerosis or chronic Bright's disease We all have made diagnoses of well marked albuminuric retinitis and hemorrhagic retinitis from high arterial tension and arteriosclerosis, but it is the very early and less prominent retinal lesions and their significance which so often escape attention The discovery of almost indistinguishable small white dots in the macular region or in the neighborhood of the disk the hazy or faintly milky colored areas the beaded and irregular contour of some of the vessels and scotoma either with or without visible retinal alteration, should lead to further investigation and will often be found to be associated with high arterial tension and urinary findings which point conclusively to the possible early development of pathologic changes which will take the life of the patient It is therefore important to take the blood tension, examine the heart and have made a thorough chemical and microscopic examination of the urine in all cases in which these suspicious retinal lesions are discovered It is the combination of manifestations which make the picture which sometimes tells the fate of our patient and if we are going to do the most for our patients we must recognize the retinal lesions and the associated manifestations at the earliest possible moment so that appropriate care may be instituted Unless due care is observed the retinal lesions may be overlooked for frequently they are discovered during the progress of a routine ophthalmoscopic examination in connection with the adjustment of glasses and at a time when the patient considers himself perfectly well As competent and careful ophthalmologists we are not doing our patients justice if we do not make a careful ophthalmoscopic examination in every refraction case for it will often be found that something more than gl [illegible] required In my experience the sphygmomanometer is almost as important as the ophthalmoscope in the ophthalmologist's office and the use of the instrument in connection with careful chemical and microscopic examinations of the urine will throw much light on some of the lesions of the retina which otherwise might be overlooked or considered trivial and insignificant

NASAL HYDRORRHEA

ITS RELATIONS TO LESIONS OF THE BRAIN AND VISUAL APPARATUS [*]

CASEY A WOOD, M D
CHICAGO

The peculiar condition known as nasal hydrorrhea although it generally falls, first of all at least, within the purview of the rhinologist and ophthalmic surgeon, properly belongs to neither of these specialists The tissue alterations that result in the serous discharge from the nose are almost always cranial and cerebral and, of course, should be the special property, not of the rhinologist but of the neurologist It so happens, again, that this peculiar symptom is not infrequently associated with brain changes that affect the visual centers and give rise to eye symptoms It is mainly with the latter that I propose to deal, although I present them as signs of the underlying, intracranial disease

The first examples of the disease were reported as long ago as 1890,[1] by Dr T Melville Hardie and myself Of these I now give the following abstract (Cases 1 and 2)

CASE 1 —Mrs Mary S, aged 43, German, has one child, aged 14, healthy Until nine years ago, when she came to America she had always enjoyed good health After living for two weeks in a basement, in February, 1881, she developed a cough which became asthmatic some time between March and July She has had occasional attacks of asthma ever since particularly in cold damp weather In July she received what her medical attendant told her was a sunstroke, which confined her to bed for some time Pills (of quinin?) prescribed at that time caused a buzzing in the ears with deafness for several days and during the severe headaches usually vertical from which she has suffered at intervals since that time, the deafness occasionally recurs

In August or September 1881, a watery discharge from the nose set in The conjunctiva was reddened and lacrimation was profuse at the same time The discharge lasted for three or four days, stopped for a month came on for a few days, and again intermitted Similar periods of discharge and its absence alternated continuously until about two and a half years ago, since which time the nasal flow has occurred daily but as a rule only for three or four hours in the morning

The patient reports that it begins just as soon as she rises in the morning, whether that be at 4 30 or 6 30 Excepting on one or two occasions, no discharge has been noticed at night She cannot remember whether the discharge occurred on days on which she was confined to bed She has never attempted to stop the discharge by lying down in the morning after the commencement of the flow As a usual thing the fluid comes from both nostrils (sometimes from only one), and drop by drop Shortly before stopping for the day the clear water, whitish and opalescent when in quantity, becomes thicker and viscid, and then resembles ordinary mucus Sneezing and formication are somewhat frequent accompaniments of the outflow, but they are by no means constant, nor does the formication always precede the discharge, as one might expect, it quite as frequently follows it The patient believes that the symptom has been aggravated by treatment While the asthma is ordinarily troublesome only in cold and damp weather, she is not sure that the hydrorrhea is appreciably influenced by changes in the weather, nor has she noticed that it is worse on damp days She thinks that it is as bad in July as it is in November, and varies in amount from time to time, without apparent reason

In October, 1889, she found she "could not see to sew," and attended Dr Franklin Coleman's eye clinic, where glasses were prescribed She was then referred to me Examination of her nose showed slight posterior hypertrophy of the right inferior turbinal and a dropsical condition of the middle turbinated bodies right and left, ridge on the septum high up on the left side no polypi, sense of smell unimpaired, no marked departure from normal sensibility of nasal mucous membrane as tested by the probe Satisfactory posterior rhinoscopic view was not obtainable, tongue depressor causing gagging

The general health was not very good A burning pain in the epigastrium after eating was not infrequent There was a painful and hyperesthetic spot over the left eighth rib in front which first became painful five years ago There were no neuralgias The patient was being treated in gynecologic clinic for laceration of the cervix She had been treated during the past ten years by many regular practitioners and *empirics*, but without marked benefit The removal by the snare of portions of the middle turbinated bodies followed by the internal administration of zinc oxid (½ grain) and belladonna extract (¼ grain) markedly diminished the flow for a time Treatment was begun on April 10, with good results until May 6, when a day and night discharge commenced This lasted until May 9 the patient getting but little sleep in the interval The nasal discharge was at that time accompanied by a flow from the eyes and a severe headache On May 10 and 11 she had asthma, there was no discharge or headache She was then almost free from unpleasant symptoms until June 3, since when she had an almost daily recurrence of the discharge until June 7, 1890, with asthma and headache from time to time Patient's attendance had been very irregular since the beginning of June

The fluid had a specific gravity of 1 008 contained chlorids, traces of mucin, a few cells from the olfactory region, and an occasional flat epithelial cell It was feebly alkaline in reaction

Dr Hardie kindly associated me with him in this case and at his request I examined the patient's eyes with the following result

M S has complained of weakness of sight, chiefly during the past eight months Last November glasses were prescribed for her which, however she did not think enabled her to see any better She suffers from bilateral epiphora, which is usually though not always worse in the morning It then amounts to a continual flow from both eyes of a fluid resembling tears, and generally speaking is worse when the discharge from the nose is worse During the daytime also, when the nasal flow is lessened or stops altogether, there is very little lacrimation The flow of tears has never produced excoriation of the lids In November last vision, right eye, equaled 15/200 left eye, 15/40 She was then wearing right + 3 D, and left + 1 75 D which on trial were found not to improve the visual acuity Both adduction and abduction were weak, the latter 8°, the interni muscles could, after exercise, overcome a prism of 19° 23° only At that time she complained of photophobia and of dark spots in front of her eyes—in front of the right eye especially—and she thinks that for a time at least she was so blind that she could barely discern large objects Then, for a while, her vision improved, but it has never since been normal, nor is it possible by correcting her refractive error (compound hyperopic astigmatism) greatly to improve the visual acuity The conjunctivæ, both ocular and palpebral, are injected, but there is no purulent or mucopurulent secretion from the lids, and they do not adhere in the mornings The last examination shows a marked improvement (in the right eye particularly), as vision, right eye, equals 20/40 and left eye 30/40, both with correction The puncta lacrimalia are patent and in normal position There is no affection of either lacrimal sac and no indication of obstruction of the nasal duct The ocular excursions are of normal extent on both sides and in all directions Pupils are both active to light and accommodation. Tension is normal in both eyes The patient does not now complain of scotomata, only of weakness of vision and of inability to read or to do near work with comfort These and the other ocular symptoms have not to any appreciable degree been relieved by atropin or by a full correction of the refractive error A further examination of the case reveals the fact that the patient is not color blind, and that she has no color scotomata The fields of vision for red and white, taken by means of a McHardy perimeter with a 5 mm square object, show a marked regular and symmetrical contraction

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[*] Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints A copy of the latter will be sent by the author on receipt of a stamped addressed envelope

[1] Hardie and Wood Two Cases of Nasal Hydrorrhea with a Report on the Eye Symptoms, New York Med Jour, Sept. 6, 1890 p 204

The right disk is deeply and centrally excavated, and the blood vessels come forward in a normal manner, but the whole papilla is slightly paler than it should be On the nasal border of the nerve there is a narrow, yellowish white band, forming in that situation the rim of the physiologic cup, and occupying about one third of its circumference A somewhat similar appearance is to be seen in the left disk Here there is no general pallor, and the normal cupping is shallow At its bottom, however, the stippling of the cribriform fascia is to be seen A band, yellowish white in appearance, longer than but quite as narrow as that visible in the right disk, occupies the lower outer aspect of the left papilla It does not extend as in the former case, to the edge of the excavation toward the nerve center, nor does it reach in part of its course the outer rim of the disk.

Notwithstanding all treatment, the ocular symptoms are to date as pronounced as ever

Case 2 —Mrs K K., German, aged 42, two children, gave a history of profuse watery discharge from the nose which has lasted for ten years Six months before the discharge began the patient suffered from "malaria" when living in a basement tenement The flow was at the beginning not very profuse but in a short time was troublesome throughout the day, and frequently all night as well She was often wakened by it, and it was occasionally so profuse as to prevent sleep altogether The intermissions were rare and of short duration Patient asserted that the dropping had never ceased for twenty four hours during the ten years, the amount of the discharge being about the same, summer and winter The upper lip was swollen and excoriated There was a watery discharge from eyes with occasional conjunctival injection The fundus was normal, there was no optic nerve atrophy and no contraction of visual fields A troublesome and prominent symptom was sneezing, "forty or fifty times a day" being the usual thing Unfortunately, the nasal excretion was not examined, the discharge ceasing before the patient followed instructions in the matter of collecting it She did not know the amount of the daily discharge, as it was never measured, but the constant dropping interfered very much with her work Examination of the nose showed polypi right and left, and polypoid thickening of both middle turbinated bodies Treatment was begun February 25, and a few polypi removed

March 8 Marked lessening of discharge reported Remaining polypi removed

March 12 Discharge very slight No sneezing

May 6 The same Hypertrophy of right middle turbinal snared

May 17 No discharge No sneezing Snaring of left middle turbinated bone Patient reported absence of nasal symptoms on May 22, June 5, 12 and 19

Case 3 —Quite recently I examined the ophthalmic condition of a third patient illustrating this pathologic condition The history elicited by Dr Albert Sterne, of Indianapolis, Ind. shows that Mrs McC, aged 36, has always enjoyed excellent health. She has been married seventeen years and has two children aged 16 and 12 years After the second birth she had septic pelvic cellulitis with amaurosis almost complete for about three months, followed by good recovery so far as the pelvic organs and eyes were concerned The vision was nearly normal with correction of refraction At the time of sepsis twelve years ago patient had an abscess, which was evacuated per vaginam.

Patient first came under Dr McC's care for nasal and ear trouble about eight years ago five years before he was married to her There was, Dr McC reports a catarrhal condition of the entire nasal field, extending along the eustachian tubes, and causing an ear trouble with some deafness, which still persists She never had any discharge from either ear Except the pain about to be referred to the patient has not been subject to headache at any time and menses have been in proper order There have been no pregnancies since her boy's birth, thirteen years ago

The present illness began three years ago, suddenly the patient avers with a watery discharge from the left naris There was more or less constant dripping when the head was bent forward the flow was more profuse Altogether it was estimated that 1 to 4 ounces of fluid escaped *per diem* This discharge was always watery and two examinations showed it to be cerebrospinal fluid The discharge from the left naris continued without interruption for fifteen months when it abruptly ceased, without known cause just as it had begun There had never been any injury to the head or nose at any time, or any discharge of pus or blood

Sometime after the escape of cerebrospinal fluid ceased, the patient had a scleritis of the right eye, which was relieved by treatment Later, she developed pain in the right half of the head This is described as passing from the right eye toward the occiput mainly, sometimes more downward into the cheek It was not constant

During the early part of October, 1911 while at dinner the patient suddenly lost consciousness for about three minutes Her head fell over on her arm but she had no spasm of any sort Dr McC was with her, hastened to her side and examined her eyes He reported the pupils dilated and fixed The patient was somewhat dazed after this attack then recovered and was placed in bed after a hot bath The left leg and arm tingled after seizure No other such epileptiform seizure has since been noted

A Wassermann was made and proved negative

Present Condition —The patient is of a fine robust physique Speech is nasal and catarrhal, hearing considerably impaired, organs all fair to good, save that the liver is swollen, lungs free, kidneys, right excursive but not floating

Pelvic viscera show evidence of former inflammation There is a hard exudative mass to right Uterus is free Ovaries are painful to pressure and not well defined

In the central nervous system no focal signs are to be noted nor are the reflexes affected Static equilibrium and coordination are good, no sign of motor or sensory palsy Cranial nerves are free Sinuses illuminate clearly

Therapy Tentative Cranial exploration or special puncture to be borne in mind

Since Nov 5, 1911, patient has improved pretty steadily without treatment of any sort, doing household tasks and a little reading She reports that symptoms of importance have receded, i e, there has been less headache both as to degree and frequency, the sharper occasional pain over the left hemicranium has been very infrequent the eyes have troubled less there has been no loss of consciousness or other signs referable to intracranial pressure In fact the patient feels better in every way Secretions and excretions have been adequate Further examination also reveals no new symptoms whatever The liver is not now palpable

In addition to the above report, Dr Sterne, writing me on Nov 5, 1911, says—

Certain very serious questions present themselves I recognize fully the seriousness of the outlook in every case of this kind, not only as regards vision but as to epilepsy As regards the latter condition, thus far we have had only epileptiform seizure without convulsions I have seen several cases of escape of cerebrospinal fluid from the nose but all of these have been the result of injury In this case there has been no injury The history shows that the flow from the left naris began suddenly, continued for fifteen months and stopped with equal suddenness Subsequent to the cessation of the flow there developed scleritis in the right eye the pains in the right half of the head and recently the epileptiform seizure with subsequent sensory symptoms of the left arm and leg At t present time all of the symptoms, none of them, by the way, objective, point to a gross lesion of the right half of the brain, in spite of the fact that the escape of fluid was from the left naris

My diagnosis at this time is hydrocephalus, a chronic ependymitis, probably with occlusion of the right foramen of Monroe, but I may be in error about this I should like to have some pretty definite knowledge of the condition of the sphenoid sinuses before definitely determining the cerebral lesion"

After several additional observations of this case, Dr Sterne again wrote me on Jan 19, 1912, as follows

From the date of my first examination on Nov 5, 1911, I have felt inclined to regard the case as a right sided, internal hydrocephalus either with or without a cyst The few indications, all subjective, which the patient reports, point to an involvement of the right side in spite of the fact that the hydrorrhea was from the left naris The indications referred to were pain, sometimes radiating and sharp in the right half of the head, scleritis of the right eye and, after the epileptiform seizure had passed, tingling and numbness in the left arm and leg As I wrote you some weeks ago, I have been *and still am uncertain as to the modus of escape of the* cerebrospinal fluid through the left naris This could of course occur *via* any of the sinuses directly connected with the nose or through some abnormal channel caused by basal bone defect with lesion of the nasal mucosa It is even possible that it may have made its way to the left naris, but I regard all of this as conjecture in the absence of definite symptoms and an apparent bone or sinus involvement at the present time

"I saw Mrs McC again Dec 27 1911 At that time she showed an excellent physical condition and reported that she was feeling very much better *quoad* the pain in the right side of the head and the eyes There had been no further seizure of an epileptiform type *In other words, nothing had developed* which served to modify my opinion of the case Subsequently I wrote to Dr McC counseling careful observation of the fundi and repeated examinations thereof, so that we would not be unexpectedly confronted with any situation pointing to brain lesion Later Dr McC wrote me saying that he had examined the fundi and that he found considerably more blurring of the disk of the right eye with some atrophy following the lower nasal vessels for some distance from the entrance In the left eye the disk was not so blurred, but there was a more decided patch of atrophy in the lower temporal quadrant The fields were contracted in both eyes'

The husband *who is an expert ophthalmologist,* wrote me Jan 1, 1912, enclosing perimeter charts that showed a general contraction of the fields in both eyes for white—a limitation of their periphery that closely corresponded to the measurements made by my own assistant in September, 1911, when we first examined the case *On the former date he reported*

"In the right eye, or worse one, there is considerably more blurring of the disk than in the left, with the white atrophic nerve fibers following the lower nasal vessels for some distance from the entrance In the left eye the disk is not so blurred, but in the lower temporal quadrant there is a more decided patch of atrophy than there is in any one place in the right disk"

To the foregoing reports I have to add that my colleague Dr Frank Brawley, made a careful examination of the nose and accessory sinuses on several occasions, and found nothing of pathologic importance or aught that threw any light on a possible aqueduct *for* the cerebrospinal fluid The patient continued to complain of asthenopia on using her eyes, there was still some photophobia and a slight patch of scleral injection in the right eye The pupil reflexes and the muscular balance were normal With correction of a slight refractive error vision was *practically* full in each eye The fundus changes were mostly confined to the papillæ, which, in both eyes, showed on the several occasions when I examined the patient blurred outlines and some swelling of the nerve head proper The retinal vessels were of normal size and outline, although *in the congested optic papillæ there seemed to be a few new* vessels The disks were generally redder than normal and yet the physiologic cup was not filled up, indeed, as Dr McC remarked, the appearance was that of a mild postneuritic atrophy

As shown by the accompanying charts of the fields of vision and by other signs, the patient's general condition, as well as the visual, cerebral and nasal symptoms, have on the whole slowly improved during the past six months Whether this happy condition will continue or whether the surgical intervention spoken of will yet have to be undertaken remains to be seen

The chief interest for us in the discussion of nasal hydrorrhea lies in its etiology and in the fact of the occasional presence of marked eye complications The literature of the subject is by no means extensive, and the histories of cases in which a continuous discharge of water from the nose was a symptom will compel one to conclude *that it may, like atrophy of the optic nerve,* be produced by different conditions

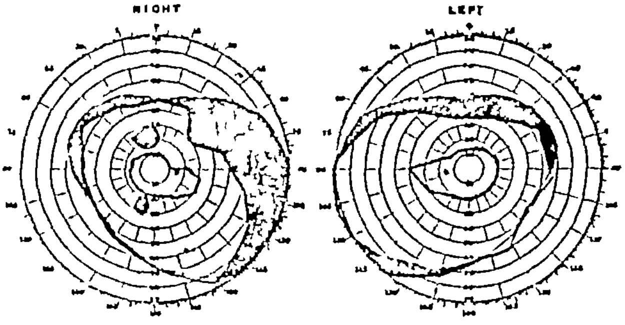

Fig 1—*Case 3* Nasal *hydrorrhea* Right fields 5 mm for red and white Left fields for white red and green Sept 21 1911

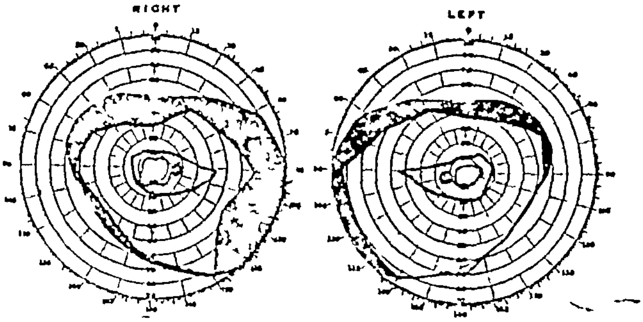

Fig 2—Case 3 Nasal hydrorrhea Right fields 5 mm for white *red and green* Left fields for white red and green Feb 12 1912

Of the earlier cases one was evidently due to fracture of the base of the skull (Vieusse's[2] case), it is an occasional accompaniment of general anasarca (Rees[3]), of meningitis (Paget[4]), of trifacial paralysis (Althaus[5]), of hydrocephalus internus (Leber,[6] who thought there had been bone absorption from pressure with escape of the cerebrospinal fluid from the opening thus formed), while in some cases (Priestley Smith's[7] and Nettleship's[8]) the brain symptoms appear to have been very marked On the other hand, in two cases reported by Bosworth,[9] to whose valuable paper on the subject I would refer the reader this author believes the discharge to have been the direct result of a paresis of the sympathetic vasomotor nerves. Mules[10] reports three cases in support of his theory that "the dropping is due to over-distended lymph-vessels of the pituitary membrane which by their bursting cause fistulous openings into the nasal meati." Mules concludes that the coexistence of optic-nerve atrophy with an abnormal watery secretion from eye and nose is to some extent a coincidence. He explains the occurrence of the atrophy by suggesting that it may sometimes be due to the wasting character of the general disease, of which it and hydrorrhea happen to be symptoms. In some cases of hydrorrhea there is no atrophy, just as in other cases of atrophy there is no hydrorrhea.

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[2] Vieusse Gaz hebd de méd 1870 No 19 p 298

[3] Rees London Med and Surg Jour 1831 iv, 823

[4] Paget Tr Clin Soc London 1870 p 43

[5] Althaus Brit Med Jour 1878 ii 831

[6] Leber Arch Ophth (Graefe's) xxix 273.

[7] Smith Priestley Ophth Rev London ii 4

[8] Nettleship Ibid p 1

[9] Bosworth Treatise on Diseases of the Nose and Throat, New York 1880 i, 201

A review of the three cases above detailed, as well as of others elsewhere reported, brings us to the following conclusions:

1. The rather rare condition known as nasal hydrorrhea is not a definite disease, but is merely a symptom of one or more pathologic states.

2. In the majority of cases optic atrophy, more or less pronounced, accompanies or follows the discharge from the nose.

3. The visual involvement is, like the chief nasal symptom, generally a part of an intracranial disease that underlies the affections of both nose and eyes.

4. The discharge that flows so copiously from the nose is cerebrospinal fluid, and it is just possible that when epiphora accompanies the hydrorrhea the lacrimal discharge may, in part at least, be of the same character.

5. The nasal hydrorrhea usually comes on without apparent reason, is generally intermittent as to amount and time, may disappear for a considerable interval or may cease entirely as quickly and mysteriously as it came.

6. If there be any organic disease of the nose it is, as a rule, merely a coincidence. Perhaps, however, some of the nasal lesions may be connected with the bony defects or minute fistulas through which the intracranial fluid finds its way into the upper nasal passages.

7. The underlying cerebral disease is frequently some form of hydrocephalus. The intracranial tension due to this disease finds relief by seepage of fluids through one or more basal openings (pressure passages, congenital, natural or acquired) into the nasal meati or neighboring sinuses.

8. The course of the optic atrophy depends on the character of the brain lesion, and especially on the extent to which the visual centers are involved by the cerebral disease.

9. In every case of nasal hydrorrhea treatment of the brain alterations should first of all be considered, and, in this connection, lumbar puncture, or some decompression operation ought to be borne in mind.

7 West Madison Street.

ABSTRACT OF DISCUSSION

Dr. Oscar Wilkinson, Washington, D. C.: As one who does nose work as well as eye work I have seen a good many cases of hydrorrhea but I regret not to agree with Dr. Wood in some of his conclusions. In his second conclusion he says: "In the majority of cases optic atrophy, more or less pronounced, accompanies or follows the discharge from the nose." This is in hydrorrhea cases. Out of at least twenty hydrorrhea cases which I have seen only one or two developed atrophy. I have known at least two or three persons who were treated for hydrorrhea, and as far as I can determine, the symptoms were very much as in Dr. Wood's cases. In his fourth conclusion Dr. Wood says: "The discharge that flows so copiously from the nose is cerebrospinal fluid and it is just possible that when epiphora accompanies the hydrorrhea the lacrimal discharge may in part at least, be of the same character." From an anatomical standpoint we can hardly conceive how the lacrimal fluid can be cerebrospinal fluid or a mixture with cerebrospinal fluid. The very nature of the cellular tissue of the orbit would give us an edematous condition if we had a leakage into the orbital tissue. Instead of having hypersecretion from the eye or a lacrimose condition we would get an edematous condition if we had cerebrospinal fluid. It is my opinion of these cases that there are three elements necessary: (1) a neurotic subject, (2) an auto-intoxication of some kind that has aggravated these nervous filaments and (3) a latent sinusitis which has very likely destroyed the cerebral plate of the sinus sufficiently to allow the gradual leaking into the sinus cavity. This cerebrospinal fluid is not thrown out all at once from the cerebral cavity but is an overflow from the sinus cavity which has accumulated during the night.

Dr. Casey A. Wood, Chicago: I agree with Dr. Wilkinson in a measure and I think his objection is well taken. What ought to have been more definitely stated is that when the lesion involves both the nose and the eyes and the discharge contains cerebrospinal fluid the underlying disease is a hydrocephalus, which in its turn is of course only one form of a pathologic process of variable character going on within the cranium. In such cases it will be found that the optic nerve is more or less involved sooner or later, and restrictions of the field generally positive scotomas will be found in the great majority of cases.

A CLINICAL COMMUNICATION ON CERTAIN VISUAL-FIELD DEFECTS IN HYPOPHYSIS DISEASE, WITH SPECIAL REFERENCE TO SCOTOMAS*

G. E. DE SCHWEINITZ, M.D.
AND
T. B. HOLLOWAY, M.D.
PHILADELPHIA

For many years the symptoms of affections of the hypophysis have attracted conspicuous attention, and naturally the visual-field defects of disease of this gland have been carefully studied.

No one more thoroughly than Harvey Cushing has studied all phases of pituitary body disease from the physiologic, experimental and practical surgical aspects, and during these studies he has accumulated and charted a series of visual fields which are of the highest importance and greatest interest.

We desire in this brief communication to make special reference to certain localized visual defects, to wit, scotomas, central, paracentral and peripheral, which have been noted under these circumstances, and to which, it would seem from an examination of the literature, an insufficient amount of attention has been paid, although they have by no means been neglected and have often been charted. They are the subject of special reference in Bartels' paper.

The close anatomic relationship of the optic chiasm to the hypophysis naturally brings about as a frequent symptom of tumor or disease of the latter body the various visual defects which disease of the former structure can produce, and one not infrequently sees statements, such, for example, as Hochwart has made, that in the present state of our knowledge the diagnosis of tumors of the hypophysis is not very difficult. Certainly when the symptoms of pituitary body disease, both general and trophic, are well developed, and when the visual field defects are pronounced, especially the so-called typical bitemporal hemianopsia, accurate diagnosis is not difficult and is frequently often promptly confirmed by *x*-ray findings It is a mistake, however, to fix our attention too definitely on hemianopsia of the bitemporal variety as a typical hypophysis disease field,[6] especially as lateral homonymous and nasal hemianopsia may occur Moreover, the visual disturbances in pituitary body tumors are for the most part dependent on compression of the optic chiasm, optic tracts, or the optic nerves by the growth, and as these neoplasms may be vascular or cystic, variations in the visual field defects are constantly found, particularly if, as A de Kleijn[4] maintains, perimetric examination is a daily routine Thus he insists that in one patient a classical hemianopsia may be present at one time, but if daily examinations are made, it will often be found that it has given place to an ordinary concentric contraction Again, as in certain other diseases, the visual-field defect of tumor of the hypophysis may assume an insular shape, as it did in one of de Kleijn's patients, and this insular shape is subject to variations The islands vary, not only in their number, but in their relation to the part of the visual field which they occupy

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[10] Mules: Tr. Ophth. Cong. Heidelberg, 1888.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the authors' reprints.

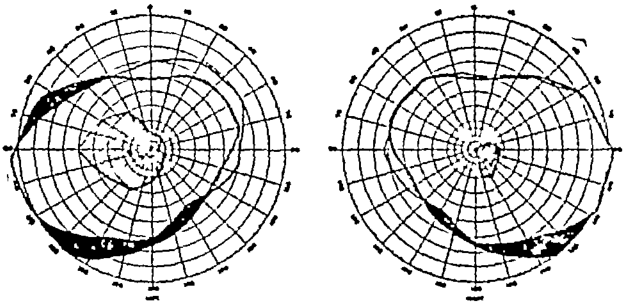

Fig 1 —Marlow's case of acromegaly with large temporal scotomas somewhat resembling bitemporal defects described by Uhthoff as suggestive of pituitary bone tumors

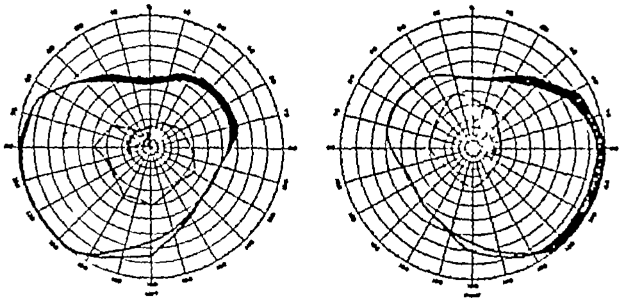

Fig 2 —Doyne's case of acromegaly scotoma up and out from fixing point later bitemporal hemianopsia

It is not the purpose of the present brief communication to refer to the variations of the visual field in hypophysis disease, but only to say a few words in regard to some of the scotomas which may be found under these circumstances

That central scotomas (paracentral in the sense that they proceed to the outer side of the fixing point and close to it) may antedate the development of bitemporal hemianopsia from chiasm disease, has long been known

Just because the alterations in the visual field under these conditions are subject, as already pointed out, to marked variations, it is difficult to arrange a classification of these scotomas The following list would seem to be a permissible attempt in this respect

1 These scotomas may be, like those already referred to when discussing chiasmal amblyopia (and in many of the instances of this affection doubtless they were due to hypophysis growth), small and paracentral Subsequently, with increase in the size of the growth and of the pressure symptoms, they may expand into complete hemianopsia There may be, as, for example, was the case in Marlow's[11] patient with hypophysis disease, in one eye a scotoma just outside of the fixing point and a larger one, more produced to the temporal side but including the fixing point, in the opposite field (Fig 1), the peripheral fields at the same time being comparatively full Or there may be, as in one of our own cases, a small paracentral scotoma of one field, with a contraction of the color field of the opposite eye, the contraction being relatively greater on the temporal side (compare Figs 6 and 7)

2 An absolute or relative defect may be detected up and out, forming a quadrant in the manner shown in the accompanying diagram, one of the best examples being the field charted by Mr R W Doyne[12] of a patient suffering from optic-nerve atrophy with acromegaly Such scotomas may be bilateral or symmetrical, or nearly so, the larger scotoma, however, as in Doyne's case, usually being seen in the field of the eye with the poorer vision, or the scotoma may be unilateral (Fig 2) A somewhat similar instance, the left scotoma being directly above the fixing point and the right one up and out in the usual position, has occurred in our own experience (Compare Fig 5) Again, the scotoma may exist in one field in the position previously named and be associated with a small central scotoma in the opposite field, as in one of our own patients during the period of convalescence of pituitary body disease (compare Fig 10)

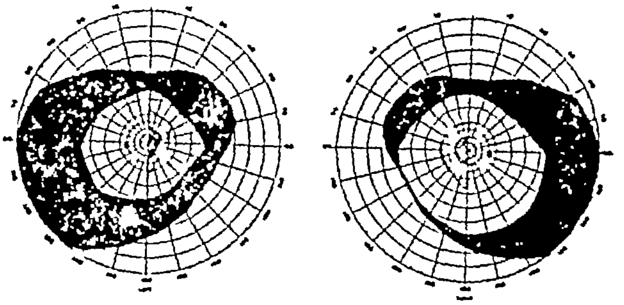

Fig 3 —Binasal scotomas lasting two weeks bitemporal color defects. Zentmayer's case of acromegaly

3 Just as the visual fields in vascular basal disease, particularly if the hypophysis is involved, may vary from day to day, certainly from week to week, owing to the varying degrees of pressure which the neoplasm or struma produces, so it is possible that these scotomas vary in size and in position, and that they may be present for a period of time and then disappear For example, in Zentmayer's[13] well-reported case hemianopic scotomas persisted for two weeks, and, moreover, on the nasal side, and were associated with contracted form fields and with bitemporal hemianopic color defects (Fig 3) Curiously enough, it may happen that after more or less

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[6] Bartels (see Note 1) points out that so-called typical hemianopsia occurs in only about one third of the cases of tumors of the hypophyseal region where diagnosis has been confirmed by autopsy

[11] New York Med Jour 1910 xci 704

[12] Tr Ophth Soc U Kingdom, 1895 p 133

[13] Ann Ophth., 1910, xix 719

typical visual-field defects have disappeared as the result of treatment, a recrudescence of visual disturbances may arise, dependent on the presence of large central scotomas This was the case in a patient examined by Lauber[14] At first the left eye was blind and the right eye had temporal hemianopsia After mercurialization, the diagnosis having been syphilis of the hypophysis, the right field was entirely restored, as was the nasal half of the left field With the ophthalmoscope atrophy of the optic nerve was evident Some months later vision again fell, then on account of the presence of the scotoma before referred to Another variation is contracted form field, color hemianopsia and central scotoma, as, for example, in Kocher's[15] patient, diagnosis having been settled by operation Again, as in Bartels'[16] case there may be contraction of the form and color fields and central relative scotomas

4 Kund Pontoppidan[17] has observed with normal form-fields large bitemporal hemianopic scotomas, absolute in the right field and relative in the left, due to a tumor situated within the circle of Willis, extending from the anterior border of the pons to the chiasm The infundibulum emerged from the most prominent portion of the growth (Fig 4) Uhthoff[18] has recently demonstrated and insisted that such large paracentral absolute scotomas in the outer halves of the visual field are a conspicuous and, according to his observations, a frequently observed phenomenon in connection with hypophysis tumors These scotomas are similar to the one depicted in the left field of Figure 1

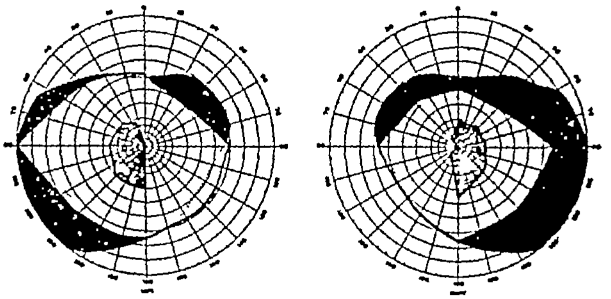

Fig 4 —Visual fields of Pontoppidan's patient with large bitemporal hemianopic scotomas.

5 Occasionally a scotoma has been noted in the temporal field at some distance from the fixation point which is manifest before, and, in point of fact, at some considerable time before, the entire field is obliterated This we have observed in one undoubted case of pituitary body disease and in another case supposed at the time to be of like nature, but in which subsequently an autopsy demonstrated that the pituitary body itself was uninvolved in a neoplasm, but probably that the pressure was on the tract posterior to the chiasm In the field of the first of these patients the scotoma existed as an oblong area lying below the horizontal meridian which it touched at its upper end, and therefore it was in the lower and outer quadrant of the field In the same field there was a paracentral scotoma of the type already described (Compare Fig 8) A very similar visual-field defect which occurred in the second case (the pressure in this instance having been on the tract so that ultimately a homonymous hemianopsia developed), occupied an exactly similar place, although it was not so great in extent, and, moreover, was in a field which was not subsequently obliterated Nothing in the eye-ground accounted for the presence of these scotomas, and their explanation is not very clear They are mentioned here not because they seem to have any very great significance—at least the observations are too limited in number to place any satisfactory interpretation on this visual-field defect—but rather because they belong to what may be described as some of the curiosities of the visual-field phenomena in basal disease of the brain It is not uncommon to find islands of preserved vision in the dark fields of pituitary body affections which have a similar appearance These islands have somewhat the same situation and extent which these scotomas present In other words, in the one instance an area is preserved which in the other is obliterated

6 We would like to call attention to the fact that in some of these cases for a considerable period of time prior to the development of a central scotoma, even when most searching examination fails to reveal it, the patient is conscious of blurred vision, indeed, the blurred vision itself may be the symptom which causes the patient to seek advice This symptom was so conspicuous in one of our patients and so notable in another that perhaps it may be described as an antecedent amblyopia The patient is conscious of a blur which is unexplained by any opthalmoscopic lesions and which cannot be demonstrated in the sense that a test object on the perimeter can outline an area of defective vision To this point we shall return later

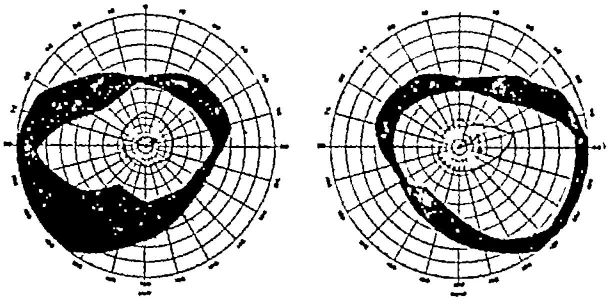

Fig 5 —Authors Case 1 pituitary body tumor Concentric contraction scotoma up and out from fixing point in right field and above fixing point in left.

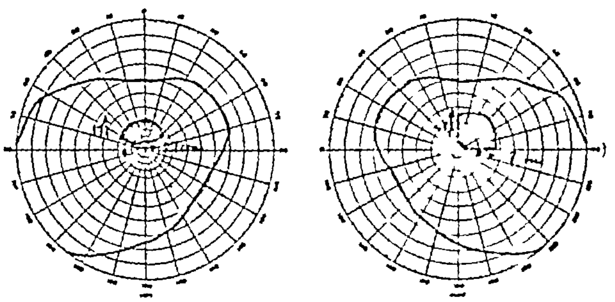

Fig 6 —Case 1 same scotomas as in Figure 5 charted on a black screen at one meter's distance from patient's eye with a 3 mm white object

CASE REPORTS

The following case histories illustrate some of the scotomas to which we have made reference

CASE 1 —*History* —A man aged 32 came under observation Oct 26 1911 The patient's father and mother are living and well The father is deaf as the result of a chronic catarrhal otitis media The oldest sister in the family is slightly deaf and the youngest sister quite deaf from [illegible] trouble believed to be situated in the auditory nerve One other sister is perfectly healthy A brother, when 10 years of age, developed optic nerve atrophy with scotomas, but under proper treatment these have largely disappeared, and although there are still scotomas in the periphery of the visual fields, fixation is perfectly clear in both eyes and vision good The patient's mother had one brother who is said to see badly, "due to amaurosis," probably therefore an optic nerve atrophy There is no history of tuberculosis, syphilis, neoplasm, cardiac or renal disease in the family One maternal uncle is a man of great size and weighs upward of 300 pounds The patient weighed 15 pounds at birth He was, until his eyesight became defective, in active business He has been extremely irregular in regard to his meals, has always indulged in much pastry and sweetmeats, and exhibits an astonishing tolerance to carbohydrates Very little tobacco, tea or alcohol has been used Specific infection is denied, and the Wassermann test is negative At 17 years of age he had inflammatory rheumatism, and since then has suffered from several mild attacks About two years prior to this report the patient's average weight was 265 pounds, and for the past half year about 290 pounds

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[14] Klin Monatsbl f Augenh 1910 xlviii, 20
[15] Deutsch. Ztschr f Chir 1909 c 11
[16] Ztschr f Augenh 1906 xvi 407
[17] Hospitalstid December 1897 xl 1137
[18] Klin. Monatsbl f. Augenh. 1911 xlix 393.

Examination—The general examination failed to discover any cardiac or vascular disease, urine examination was negative, and careful exploration of the sinuses by Dr Charles P Grayson, including transillumination and catheterization of the sphenoid, failed to reveal any disease in these regions X ray investigation failed to show any sinus involvement, but the sella turcica was enlarged, badly defined and filled in There is no excessive hairiness and also no notable loss of hair, although there is no beard The sexual powers are normal, and there are no disturbances of taste or smell Intellection is good The tendon reflexes appear to be normal The patient is a man of large frame fat, but with firm flesh and with rather coarse skin His hands and feet are large, but a spade like character of the hands can hardly be said to be present

Ocular Examination When first examined the vision of the right eye was 4/15, of the left eye 1/45 This vision, in spite of all treatment, has steadily declined until at the present time it is 4/100 in each eye There is no swelling of either disk, but some deep pallor, more marked in the right eye, on the outer side of the disk The veins are tortuous, the arteries about normal in size On one occasion a small hemorrhage just below the margin of the disk was observed

The visual fields, taken on numerous occasions, are illustrated in the accompanying diagrams, namely, a moderate concentric contraction of the right field, with a somewhat wedge shaped scotoma for red and white up and out, left eye, a greater concentric contraction, more pronounced down and out and up and out than elsewhere, with an oval scotoma capping the fixing point There is moderate contraction of the red field, green not recognized (Figs 5 and 6)

CASE 2[19]—*History*—An unmarried woman, aged 30, consulted one of us (Dr de Schweinitz) on April 9, 1910, for the relief of blurred vision, particularly of the left eye, which had existed since the previous November, and which continued in spite of various changes in glasses There was no family history of neoplasm, rheumatism, syphilis, or of ocular disease The patient was born in this country, was a good student at school, and after graduation worked hard as a teacher Menstruation was established before the twelfth year of life, and continued with fair regularity until the patient's twenty first year, at which time the periods ceased and were not again reestablished The patient has had measles, pertussis and chicken pox twice, has often suffered from laryngitis which has always responded to antirheumatic treatment

Examination—There is not the faintest evidence that the patient was ever affected by any form of venereal disease She is well formed but not excessively fat, nor are there any signs of dystrophy

Ocular Examination At the first ocular examination, with proper correcting glasses the vision of the right eye was 6/7 5 and of the left eye 6/9, no diplopia The blur in vision, however, which the patient had reported at her visit and for which she sought relief, continued Ophthalmoscopic examination failed to reveal the slightest change in the fundus Three weeks after this date the vision of the right eye was reduced to 6/15, and of the left eye to 30 cm /60 The right pupil was 1 5 mm and the left 5 mm in width and the left eye slightly divergent The reflexes of the right pupil were preserved, but neither direct nor indirect light reflex of the left pupil was present During this period of three weeks the patient suffered with intense headache and nausea There were now moderate contraction of the right visual field marked concentric contraction of the color field, with greater loss on the temporal side, concentric contraction of the left field a central or hemianopic scotoma, and a large oval scotoma in the peripheral field (See Fig 8) After admission to the University Hospital, thorough studies were made from all standpoints These failed to reveal any disease of the general system except that the *x* ray examination showed great enlargement of the sella turcica on account of a growth within it The important symptoms, in addition to those exhibited by the eye, were complete cessation of menstruation at the age of 21 until the present time exaggeration of the tendon reflexes of the upper limbs and of the patellar tendon and diminution in the sense of smell Vision rapidly failed left oculomotor palsy developed, and the changes in the field of vision shown in the diagrams occurred, only those being reproduced which indicate the presence of scotoma (Figs 8 and 9)

Bitemporal hemianopsia, first for colors and later for form, developed, followed by a gradual disappearance of the entire visual field, with total blindness of the right eye lasting twelve days, and of the left eye lasting six weeks After months of treatment there was complete restoration of vision as the result of the administration of large doses of thyroid extract, associated with inunctions of unguentum hydrargyrum During the period of convalescence, for a time there was a scotoma up and out in the right eye and central in the left Ultimately these scotomas disappeared, except a small oval scotoma in the far peripheral field, the remnant of the original large scotoma in the same area which had been

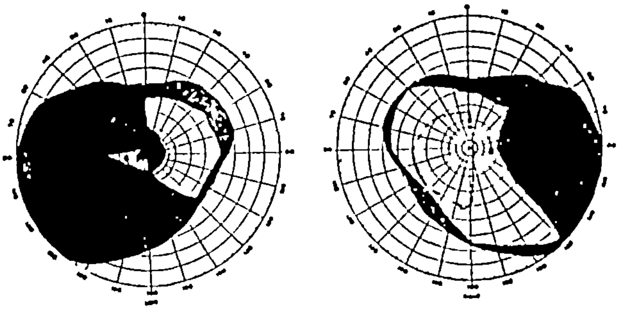

Fig 9—Later stage of Case 2 Scotoma in left field enlarging and encroaching on nasal side almost complete loss of temporal field complete temporal loss of colors in right field and partial temporal loss of form field.

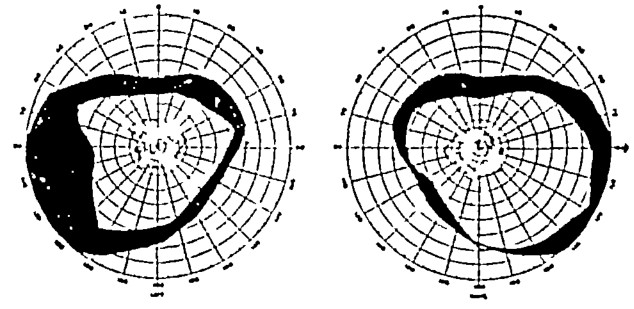

Fig 10—Case 2 in stage of convalescence Hemianopsia has disappeared concentric contraction remains scotoma up and out for colors in right field and central in left field

found at the first examination and to which special reference has been made (Figs 10 and 11)

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[19] This case is also included in a series reported to the Pa State Med Soc September, 1911

REMARKS

We have already made reference to what Patrick calls the relative frequency of scotomas in pituitary body disease In Uhthoff's[5] list of the ocular symptoms of 148 cases of hypophysis and infundibular tumors without acromegaly, scotomas are reported only three times, although in the text there are at least four references to them Bartels[1] among a total of twenty-two cases of hypophysis tumor, the diagnosis having been confirmed by autopsy, records 13 per cent of central scotomas, or practically three cases Concerning central scotomas in 180 cases of acromegaly, Uhthoff simply remarks that they have been observed by Bartels, Gubler and others, *but that these occurrences are uncommon phenomena* Now it goes without saying that although only three scotomas are mentioned in the long list of non-acromegalic cases which Uhthoff records, and that he describes them as relatively infrequent in the acromegalic cases, this gives no idea of their actual frequency The search for them may have been insufficient, or the fields may have been charted at a time when they were not present We know that they may antedate the gross visual-field defects by a considerable period of time. It is not a little remarkable that de Kleijn, who has so carefully investigated the variations of the visual fields in pituitary body disease, has failed to note scotomas, nor do they appear in the large series of charts in the Cushing collection This Dr Cushing explains exactly as we have explained their absence of record in much of the literature on the subject, by assuming that the visual fields were taken either at a time when the scotoma was not present, because it had expanded into a grosser visual-field defect or because an exact search on account of patient's condition could not be made for it

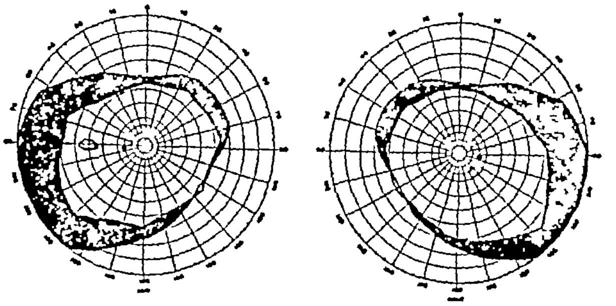

Fig 11 —Case 2 In stage approaching recovery all trace of former scotomas gone except remnant of scotoma in left temporal field Good color fields (not charted) Vision right, 6/6, left, 6/9

While it is not likely that the presence of scotomas of this character would in many instances be mistaken for those caused by toxic agents, the ordinary so-called intoxication-amblyopia scotomas, this is not beyond the range of possibility For example, Jonathan Hutchinson[20] records the case history of a patient who smoked one half ounce of shag daily, and who had central scotomas for red and green Death occurred, and at the autopsy a soft glioma, involving the apex of the right temporosphenoidal lobe and reaching across the middle line in the interpeduncular space was found This case is mentioned although it is not descriptive of hypophysis disease, because it illustrates the fact that an intracranial lesion interpreting itself at first in central scotomas occurring in a man addicted to excessive smoking received a wrong interpretation This, therefore, might also occur in hypophysis disease Indeed Pontoppidan[22] at first believed that his patient was suffering from retrobulbar neuritis due to excessive use of tobacco

It would be interesting, taking Wilbrand and Saenger's[21] plan of the distribution of the fibers in the optic chiasm as a guide, to attempt to place the probable situation of the lesions which these scotomas interpret but in large measure such an attempt would be a piece of guess-work, except in a few instances As Bartels points out, it may happen that although the visual disturbances may depend on the presence of a central scotoma, no clear explanation for its presence is demonstrable at autopsy

There seems very little doubt that some of the visual field defects caused by basal disease depend on vascular constriction Thus, as early as 1852, Turck reported a case of carcinoma situated posterior to the chiasm which pushed this structure upward and anteriorly and both optic nerves were found to be transversely notched by the pressure of anterior cerebral arteries close to their exit from the chiasm The left nerve was so badly constricted that only a thin strand remained, while the inner third of the right nerve was uninjured

In 1893 Sachs[23] analyzed forty-eight autopsies on patients with hypophyseal tumor and twice found constriction of the optic nerves In his case the tumor grew in front of the chiasm, and both optic nerves were deeply grooved by the anterior cerebral arteries Since then a number of analogous instances have been placed on record by Erdheim,[24] Uhthoff,[18] Bartels[1] and Strada[25] the first named author referring to seven cases In Uhthoff's and Bartels' patients and in two of Erdheim's the tract was constricted The autopsy on Bartels' patient revealed that the growth had developed behind the chiasm, pushing this structure forward so that the optic tract was deeply constricted by the anterior cerebral artery Bartels in his excellent contribution to this subject states that this vascular constriction owing to its position, is readily overlooked Cushing in his fine studies of this region has prepared a number of specimens which exactly demonstrate these conditions

We believe that this condition must have an important bearing on the visual disturbances and visual field defects *in cases of hypophyseal tumor*, and is undoubtedly an important factor in many cases associated with marked impairment of visual acuity, and may be a determining factor in the blindness which sometimes almost abruptly affects these patients

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DISEASE OF THE OPTIC NERVE IN MYXEDEMA

ITS RELATIONSHIP TO THE THYROID GLAND AND TO THE HYPOPHYSIS *

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The title of this paper suggests a very limited field in ophthalmology, and probably one that is of immediate

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20. Roy Lond Ophth Hosp Rep 1888 89, xii.

21 Die Neurologie des Auges 1901 iii 110
22 Ztschr d. k. k. Gesellsch der Aerzte in Wien [illegible] viii [illegible]
23 Ztschr f. Augenh 1905 xiii 578
24 Cited by Bartels (see Note 1)
25 Strada Arch [illegible] (Virchow's) [illegible]
* Owing to [illegible]
condensation [illegible]
in the Trans[illegible]
copy of the [illegible]
addressed [illegible]

interest to only a few in our Section. Unless some particular clinical experience, or one of the infrequent references in the literature has directed our attention to an undoubted connection between the thyroid gland and the hypophysis cerebri, their relationship may never have come to our notice. On this ground, and also in the hope of making some small contribution to the knowledge of the subject, the following two rare cases are reported.

CASE 1.—Myxedema with optic atrophy and bitemporal hemianopsia dependent on a probable enlargement of the hypophysis.

Patient.—Mrs. A. B., 56 years old, was referred to me Oct. 13, 1910, by Dr. W. L. Richardson and Dr. W. H. Smith. Dr. Smith, from whom I obtained her history, saw her first Aug. 29, 1910. Family history and previous history were negative, except that some years before she had suffered from arsenical poisoning. She complained of nothing except stiffness in her right knee and trifling swelling of her feet. She sought medical advice because her family had noticed a considerable degree of stiffness in her mental actions and in her general condition. The members of her family said that she forgot easily, had a tendency to marked drowsiness, and had changed much in her general appearance. Patient's appearance and actions myxedematous. Lungs negative. Heart sounds faint, soft systolic murmur at apex, no cardiac enlargement. Very slight amount of hair in the axillæ, the hair on the scalp thin. Very little perspiration. Abdomen negative. Knee jerks not obtained; some stiffness of the right knee with limitations of motion. Trifling edema of the feet. Moderate psoriasis. Nails brittle. Urine: twenty-four hour amount 54 ounces, normal acid, specific gravity 1.012, slightest possible trace of albumin, urea 13.7 gm., no bile and no sugar, sediment negative.

Ophthalmic Examination.—Mrs. B. complained of difficulty especially in reading. Her sight had always been good until recently, when she had noticed a general haziness. Through the kindness of Dr. O. F. Wadsworth and Dr. C. H. Williams I am enabled to record her ocular condition on two previous occasions.

In 1902, Dr. Wadsworth found:

V. R. — .75 sph. = 6/4
V. L. — 1.0 sph. = 6/4

Muscles were normal, fundi normal.

In August 1909 Dr. C. H. Williams made the following:

V. R. — 1.0 sph. ⊃ — .50 cyl. axis 180 = 6/10
V. L. — 1.0 sph. = 6/12

The ophthalmoscopic examination showed "retinal arteries rather small, especially in the right eye, disks slightly grayer than normal." "Pupils reacted feebly to light."

At the time of her visit to me vision was as follows:

V. R. = 6/60 not improved
V. L. — 1.0 sph. = 6/15

The pupils were equal and reacted sluggishly to light. The tension was normal to the finger. The ophthalmoscope showed marked atrophy of the right nerve-head, moderate pallor of the left nerve-head, with possible slight diminution in the size of the vessels.

The lower temporal quadrant of the right field was markedly contracted, while the left field showed a slight contraction on the temporal side. A satisfactory color field could not be taken on account of the mental condition of the patient. In fact, it was difficult to take the field for form, as she tired so easily.

Jan. 17, 1912, she presented herself again for examination.

V. R. = 2/60 not improved
V. L. — 2.0 sph. = 6/15 —

The field showed a well-defined bitemporal hemianopsia extending beyond the fixation point in the right eye, and reaching that point in the left.

The ophthalmoscopic examination showed a marked atrophy of the right nerve-head with vessels apparently of normal size and little, if any, sign of a previous inflammation. The left nerve-head was somewhat atrophic, but of much better color than the right. It was somewhat pale on the temporal side. The outlines were clear, and the vessels seemed to be nearly of normal size. A few small rounded flecks of hemorrhage were seen in the surrounding retina.

Mrs. B. was put on thyroid extract with very marked improvement. She grew a complete set of perfect nails, and her mental condition improved considerably.

CASE 2.—Myxedema with concentric contraction of the fields, low-grade optic neuritis, chorioretinitis.

Patient.—F. M. S., a man, aged 49, married, hotel-keeper, living in Maine, was referred by Dr. F. J. Lord, to whom I am indebted for the history and general examination. Family history is negative; no consanguineous marriages. Father and mother, nine brothers and sisters are living and well. Patient had children's diseases, was twice injured by being kicked in the face by a horse fifteen and thirteen years ago. He had lumbago twelve years ago; no rheumatism. He denies venereal disease and any opportunity for infection. He has one daughter aged 24, healthy. His wife had one still-born child, but no miscarriages. He uses no alcohol or tobacco; has been a hard worker.

Present Illness.—Ten years ago he began gradually to lose his hair, that of the scalp, beard and mustache becoming very thin, while the axillary and pubic hair, the eyebrows and eyelashes entirely disappeared. For three or four years the ankles and hands had been slightly swollen. For the last three years, the patient has suffered a progressive loss of sight which affected both eyes, the left, however, more than the right. At times, he has a feeling of pressure in his eyes, occasional slight headache and dizziness. He has no cough, but some dyspnea and palpitation. The appetite is good, and there is no nausea or vomiting. The bowels are regular. Patient is never uncomfortable from the heat in summer but feels the winter cold severely. He is mentally active; memory is unimpaired. There is no change in his disposition, which is exceptionally even. He is vigorous physically, but much troubled by his impaired sight. There is no loss of sexual power. Weight was about 180 three years ago; 160 now.

General Examination.—The hair of scalp, beard and mustache very thin and soft, fine rather than coarse. Axillæ, pubes, eyebrows and eyelids devoid of hair. Upper lids abnormally thick with obliteration of normal folds and depressions but no obvious edema. Hands large and the skin over the dorsal surface slightly thickened, rough and dry, but without edema. Tips of the fingers slightly clubbed. Anteroposterior and lateral convexity of the nail. Nails somewhat ridged and brittle. Feet of normal size. Marked edema of the legs, pitting regularly on pressure. No varicose veins. (It may be remarked that the patient has always had rather large hands.) Blood-pressure 150. Urine normal color, specific gravity 1.012, albumin and sugar present, sediment negative. Blood: hemoglobin 100 per cent., no leukocytosis, differential count negative.

Stereoscopic radiographs of skull show nothing abnormal. Mr. S.'s vision began to fail three years ago, beginning in the right eye.

Ophthalmic Examination.—On May 10, 1910, the patient was examined by Dr. C. H. Williams, to whom I am greatly indebted for his record at that time:

V. R. — .50 cyl. axis 90 = 6/30
V. L. — .50 cyl. axis 90 = 6/12

"The ophthalmoscopic examination showed smoky-looking disks, and small retinal arteries. There were no fundus lesions." The field was not taken.

At the time of the patient's visit to me he complained of failing sight, which had been continuous. He said that he saw as well at dusk as in daylight.

V. R. — 1.0 sph. = 6/60
V. L. = 2/60 excentric not improved

Pupils equal, but react sluggishly to light.

Ophthalmoscopic examination showed: Right: Optic disk is pale, and of a grayish color on the borders. Slightly hyperemic in the center. Outlines are blurred, the vessels decidedly small The arteries are slightly small, and show white lines along them The veins apparently slightly narrow also In the macula region is a moderate-sized whitish area of atrophy liberally sprinkled with dark pigment In the periphery of the fundus are numerous small masses of pigment of bone corpuscle shape. The retina throughout is of a granular appearance.

Left The optic nerve head is paler than in the right eye Its outlines are slightly indistinct, no swelling, the vessels are decidedly smaller than normal The arteries show white lines A short distance downward and out from the disk are three small rounded areas of chorioidal atrophy sprinkled with pigment. Below these is a similar area, but of larger size. In the periphery of the retina are many small masses of pigment of bone-corpuscle shape In this eye, also, the retina is sprinkled with minute dark spots, and presents a decidedly granular appearance

The field of vision in the right eye, taken with a 10 mm object, shows a concentric contraction, so that only an irregular area of about 22 degrees in its greatest diameter remains centrally This area approaches the fixation point below In this area, the patient distinguishes colors

In the left eye, the field shows a small remaining area, not much over 5 degrees in diameter, of uncertain outline and situated, as far as can be determined, slightly to the nasal side of the center In this area, white and red can be distinguished.

Before discussing these two cases, it may be well to consider others of a similar nature which have been reported There are few of them, and unfortunately several are incompletely described

A search through the literature has disclosed cases of a somewhat similar nature reported by Schmidt-Rimpler, Sanesi, Wagner, Burchard, Bolte, Pollack, Meyer, Gourfein-Welt, Moore, Berliner, Souroff and Hennicke For convenience they are abstracted at the end of this article

If the condition of the optic nerve, as evidenced by the ophthalmoscopic examination, be analyzed in these fourteen cases, the most marked change is found to be a low-grade optic neuritis

In Bolte's case, for instance, the outlines of the nerve-head were irregular and blurred, the veins were rather swollen and tortuous, the vessels projected forward on the disk Wagner, in his case, reported an outspoken neuroretinitis with a slightly swollen and indistinctly outlined disk In several cases, blurring or pallor of the temporal half of the nerve-head was observed Post-neuritic atrophy was seen in some Optic atrophy without further details was reported by Pollack and by Meyer In my own first case, the right eye showed only very indefinite signs of a previous inflammation In no case was there a papillitis of great intensity The changes, therefore, may be said to range from a low-grade optic neuritis to an atrophy without definite signs of a previous inflammation All these appearances can be explained by a low-grade inflammation taking place in some part of the nerve-trunk between the chiasm and the disk, and varying in clinical signs according to the location of the process

The fields of vision present points of striking interest Unfortunately, in Pollack's case there is no mention of a perimetric examination In Moore's, the field of vision could not be mapped out on account of the mental condition of the patient, while in Bolte s case it was normal

In seven cases those of Sanesi, Wagner, Meyer, Gourfein-Welt, Berliner, Hennicke and in my own first case, one or both eyes presented evidence of a temporal hemianopsia

In two cases, Souroff s and my own (Case 2), the changes show a striking similarity There was a concentric narrowing of the fields, so that in one eye of each patient a paracentral area remained with vision of 2/60 or lower and perception of white and red In the other eye, there was apparently a central area of vision preserved of 6/21 in Souroff's and 6/60 in my own case, and good perception of colors

Two cases, those of Schmidt-Rumpler and Burchard presenting a central scotoma will not be included here, but will be spoken of later

The condition of the fields in the first seven cases points almost inevitably to pressure on the optic chiasm by an hypertrophy or new growth of the hypophysis—and this finding is in accord with numerous observations made on the relationship between the thyroid gland and the pituitary body[1]

For a number of years, evidence has been accumulating which points to a close relationship between those glands of the body which possess an internal secretion and especially between the hypophysis and the thyroid A study of this evidence shows the following facts The thyroid gland and the anterior lobe of the hypophysis develop from the same embryonic structures and show a close histological similarity Furthermore in all but exceptional cases of acromegaly the colloid degeneration, with or without cyst formation, which is found in the hypophysis, is also present in the thyroid

Conversely, Boyce and Beadles, de Coulon, Bourneville and Brisson, Langhans, Ponfick and others have found in myxedema, cretinism and similar conditions enlargement of the sella turcica and disease of the hypophysis

Rogowitsch, Stieda, Gley and Hofmeister observed enlargement of the hypophysis after extirpation of the thyroid gland

Schonemann examined a number of cadavers from a region where goiter was common, and although there was no hypertrophy of the pituitary body, he found similar degenerative changes in both organs Certain chemical studies also support the view of a close relationship between the two

Clinically, the signs of acromegaly may be combined so closely with those of myxedema that it is hard to decide which set of symptoms is preponderant

Cases are occasionally found which present a combined picture of exophthalmic goiter and acromegaly (I have had the opportunity of following one of these during the past four years), and signs of exophthalmic goiter, myxedema and hypophyseal enlargement may be present in the same patient at different times as is evidenced by Bolte's case

Other glands possessing an internal secretion show a similar relationship Polyuria, glycosuria and diabetes with changes in the pancreas have been reported in acromegaly, while one of the commonest accompaniments of pituitary enlargement is the change in the generative organs, as shown by amenorrhea in the female and impotence in the male

Other recorded facts which are also of interest tend to show that the amount of pathologic change found in these various conditions bears apparently no true relationship to the clinical condition Hence, we may have greatly enlarged thyroids without the symptoms of exophthalmic goiter, marked atrophy of the thyroid without signs of myxedema, while enlargement of the hypophysis may produce several pictures clinically It is Uhthoff's[2] view that in youth it produces general disturbances of growth (giantism and dwarfism) not infr quently accompanied by a general adiposity, but without true acromegaly Brissaud and Meige hold the view that increase in the function of the hypophysis leads, in childhood particularly, to giantism, in adults to acromegaly, and in later life to thickening of the soft parts

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[1] Pineles in an excellent article (Die Beziehungen der Akromegalie zum Myxoedem [illegible] Sammlung klin Vortr [illegible] Inn Med No 731 [illegible] [illegible] [illegible]

[2] Uhthoff [illegible] Hemianopsia [illegible]

The question as to how often an enlargement of the hypophysis is sufficient to produce disease of the optic nerve has been investigated, notably by Ottolenghi and by Hitschmann Ottolenghi[3] examined the fields of vision of thirty cretins, and found no definite change which could be laid to an enlargement of the hypophysis In no case could he demonstrate a temporal hemianopsia In three cases, however, he found changes in the fundus, in Case 17, a beginning optic atrophy in each eye, in Case 25 papillitis in each eye, in Case 27 optic neuritis in each eye

Hitschmann,[4] in an exhaustive research, examined fifty-eight cretins and came to similar conclusions He found, however one case of optic atrophy, which possibly was due to an intercurrent tabes Hitschmann's fundus observations will be referred to later

We see therefore only in the rarest cases of myxedema, cretinism and similar diseases, an enlargement of the hypophysis sufficient to cause involvement of the optic nerve It has occurred undoubtedly, in only seven of the cases and in some of these, striking symptoms of acromegaly were present

In Simesi's case there were characteristic symptoms of both diseases Preference was given to myxedema on account of the order in which the symptoms developed and from the success of the treatment with a thyroid preparation

Wagner's case presented as many signs of acromegaly as myxedema In it, also, a thyroid preparation was of benefit

Burchard made the diagnosis of acromegaly combined with partial myxedema and the case presented by Gourfein-Welt also showed many characteristic features of acromegaly, but was much helped by a thyroid preparation

Formerly, the enlargement of the hypophysis which is found in myxedema and allied conditions, was thought to be a compensatory hypertrophy The enlargement found in these cases however, is not parallel with that found experimentally in animals after the operative removal of the thyroid gland It seems more likely here that we have some primary condition which affects both glands, and according to how each gland reacts to the primary disease we get a varying clinical picture ranging from myxedema with pathologic changes in the pituitary body but no clinical symptoms, to acromegaly with degeneration of the thyroid gland, but without symptoms of myxedema The cases cited here would seem to be representative of this symptom complex What makes them so unusual is the fact that the myxedematous symptoms are in the foreground

There is no reason to doubt, then, that disease of the optic nerve presenting a picture of a temporal hemianopsia occurring in the course of a myxedema is due to an enlargement of the pituitary body

A further question remains Will pressure on the chiasm always account for the diseased optic nerve in myxedema?

Berliner ends his study of the subject with the following conclusion "In pure myxedema, naturally if we exclude accidental complications, an optic atrophy does not occur It is always the result of a concurrent tumor of the hypophysis "

If this is so, how can I explain the two cases of concentric narrowing of the field? In one eye of each patient the field was reduced to a small central area around the fixation point, which did not suggest an hemianopic defect The second eye of my case showed a small rounded paracentral area remaining, also not suggesting hemianopsia Nor did the field of the second eye in Souroff's case suggest it from the description given Such fields could hardly be produced by hypophyseal enlargement And furthermore, if we except the amenorrhea in Souroff's case, neither patient presented signs in accordance with such a process

The radiographic examination made in my case by a roentgenologist of great experience and skill was negative In this connection, however, it must be said, that the *x*-ray examination was negative in Hennicke's case also, in spite of the clinical evidence of pituitary enlargement

In theory, the disease of the optic nerve in these cases might be caused by some toxic or infectious substances possibly some toxic product of metabolism allowed to work through the diminished antitoxic power of the thyroid secretion In support of this view, we have the very striking nervous symptoms of myxedema the loss of memory slow mental processes listlessness, hallucinations of speech and hearing, even insanity, also weak reflexes, cramps, spasms frequent headache and reduced temperature[6]

On the other hand, as Berliner well remarks why, if this is so, do we not see optic neuritis more frequently in myxedema and in its allied diseases? Also why has there never been found in myxedema a pathologic condition of the central nervous system which can be considered as parallel with an atrophy of the optic nerve?

Another possibility should be mentioned A general increase of intracranial pressure could cause an optic neuritis and a concentric contraction of the field If it existed one would expect however a choked disk and other clinical signs which were not present in these cases It is likewise hard to see how a hypophyseal growth could expand sufficiently to cause increased intracranial pressure without first producing a direct pressure on the chiasm

The chorioretinitis seen in my second case presents another element of a most unusual character In appearance it strongly suggested a syphilitic process from the marked vascular involvement and the striking migration of pigment from the periphery Syphilis would also explain the disease of the optic nerve No other evidence could be obtained, however except that the patient's wife had had one still-born child There was no scar on the genital organs, no history of miscarriage by his wife and their only child is 24 years of age and perfectly healthy On carefully questioning, the patient denied gonorrhea or syphilis, as well as any opportunity for infection Two separate Wassermann tests carried out by different observers were negative In spite of this negative evidence, syphilis could not be ruled out, and the patient was put on large doses of mercury and iodid, in the hope of influencing the ocular condition It cannot be denied, however, that these pathologic changes could be produced by the same hypothetical toxic or infectious agent which may have been responsible for the change in the optic nerve

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[3] Ottolenghi Cited by Hitschmann (Note 4)

[4] Hitschmann Augenuntersuchungen bei Kretinismus Zwergwuchs u verwandten Zuständen, Wien klin Wchnschr, 1908 No 27 p 956

[6] It may be noted in regard to optic-nerve disease occurring in other diseases of the blood glands that in tetany Marshner has observed a case of neuroretinitis while Cassel has seen atrophy of the optic nerves (Possek Schilddruse und Auge Klin. Monatsbl f Augenh 1907 Beilageheft p 1) as has Hanke (*Cataract Neuritis Optica Degeneration des Pigmentepithels des Irishinterfläche bei Tetanie* Ber d ophth Gesellsh 1907 p 320) also.

Turning to similar changes in other cases of myxedema or allied conditions with optic-nerve disease, Hitschmann in his studies on cretinism noted in Case 4 of his series slight pigment changes in the macula of the right eye, chorioiditis in the macula of the left eye, in Case 6, circumpapillary chorioidal atrophy with pigment deposit Bolte noted on the edge of the disk of his case, irregular gatherings of pigment These lesions probably bear little relationship to the changes in my case Hitschmann, however, presents an observation of greater similarity

Case 56—*Patient 19 years old Right eye floating vitreous* opacities, diffuse chorioiditis Left eye, posterior cortical cataract, floating vitreous opacities, and separation of almost the whole lower half of the retina About one disk diameter up and out from the nerve-head, there is a large area of chorioiditis with marked pigment deposits, several smaller areas in the neighborhood

V R = 2/60 not improved.
V L = distinguishes light at 1 5 meters

Projection faulty Field of vision in right eye, concentric contraction White is seen nasally 45 degrees, on the temporal side over 50 degrees, upward and downward 30 degrees

Hanke,[9] in a case of parathyroid disease (chronic tetany), examined pathologically, found, besides lenticular changes, the extraordinarily rare complication of a postneuritic optic atrophy, and also a very marked degeneration of the pigment layer of the iris which suggested the changes found in diabetes He attributed these changes to toxic substances circulating in the blood

Taking it all in all, I can come to no definite conclusion in regard to the changes in my case I cannot rule out an intercurrent disease, I cannot prove a toxic cause allied or similar to that of myxedema One thing seems probable, however, and that is that the process in all probability was not due to hypophyseal enlargement, and I do not believe that the present evidence is sufficient to allow me to agree with Berliner's conclusion in the affirmative

ABSTRACT OF CASES

Case 1—Schmidt Rimpler[9] reports a case referred to him by Dr Bethe in which later myxedema developed In each eye there existed a central scotoma for colors, without any discoverable change in the optic nerves, suggesting a retrobulbar neuritis in its early stages Improvement took place under treatment with a thyroid preparation[10]

Case 2—Sanesi[11] reports the case of a man in whom a myxedematous state developed There was a characteristic infiltration of the skin and lowering of the intellectual faculties, with atrophy of the thyroid gland Later bitemporal hemianopsia was found, and persistent headaches developed Sanesi hesitated between a diagnosis of myxedema and acromegaly Basing the diagnosis on the group of symptoms that appeared first, he declared in favor of myxedema Some improvement took place, also, on the use of a thyroid preparation

Case 3—Wagner[12] reports the case of a woman, 26 years old with bloating of features and hands Intelligence was reduced Speech was difficult Amenorrhea was present There was *neuroretinitis* of the right eye, vision equaled 1/10 Field of vision was apparently free The nerve head of the left eye was white, vision equaled 1/10 There was marked temporal hemianopsia Diagnosis myxedema, acromegaly, however, was not absolutely excluded There was considerable improvement under thyroid treatment

Case 4—Burchard[13] reports the case of a woman aged 23 There was swelling of features and hands Intelligence was reduced Amenorrhea was present There were paresis of the right inferior rectus temporal pallor of the right optic nerve head and a central color scotoma Diagnosis acromegaly combined with partial myxedema

Case 5—Bolte[14] reports a case of myxedema with marked nervous symptoms There were *dizziness* and twitching of limbs At first there were signs of exophthalmic goiter followed by those of myxedema There was slight optic neuritis of both eyes with fields unchanged The patient improved under thyroid preparation

Case 6—*Pollack*[15] *Girl aged 9 There was optic atrophy* of both eyes and vision was markedly reduced The condition improved much under thyroid treatment

Case 7—W Meyer[16] reported in discussion a case observed by him in Breslau In a small boy with optic atrophy and a bitemporal hemianopsia myxedema developed Von Mikulicz found a complete absence of the thyroid gland Vicarious enlargement of the hypophysis was believed to have taken place *A considerable improvement followed the use of a* thyroid preparation

Case 8—Gourfein Welt[17] Woman aged 47 There were loss of sight psychic changes marked signs of myxedema reduction of vision in both eyes an apparent slight optic neuritis in the left eye temporal hemianopsia and enlargement of the sella turcica Marked improvement resulted under thyroid treatment

Case 9—Moore[18] Man aged 44 There were very marked loss of sight, general signs of myxedema tremor of the hands and atrophy of the optic nerve of both eyes There was improvement under thyroid treatment

Case 10—Berliner[19] Female aged 20 There were loss of vision, *general signs of myxedema amenorrhea and atrophy* of the temporal half of the right optic disk and of the left optic disk Vision was much diminished Probable hemianopic defects were present Improvement resulted under thyroid treatment

Case 11—Souroff[20] Woman aged 43 There were general signs of myxedema V R = 1/∞ V L = 20/70 There was eccentric contraction of the visual fields and pallor of the right optic disk Improvement resulted under thyroid treatment

Case 12—Hennicke[21] Woman aged 53 There were general signs of myxedema diminution of vision and slight optic neuritis The general condition improved under thyroid treatment, but the eyes seemed to grow worse

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS DE SCHWEINITZ AND HOLLOWAY AND DERBY

Dr T B Holloway, Philadelphia Concerning the visual field phenomena in pituitary lesions it is difficult to state the exact cause that may be operating to produce various changes The factor that is most frequently regarded as responsible is direct pressure on the chiasm or on some portion of the visual tract, and in this connection the possibility of cysts must not be overlooked Localized meningitis toxemia hemorrhage in or about the growth, and areas of softening due, possibly to thrombotic processes may also be considered, and the last two conditions especially in the presence of probable disease of the basal vessels Finally, there is another factor which we believe an important one in determining some of these changes, I refer to constriction of a part of the visual tract by some portion of the circle of Willis

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[9] Schmidt Rimpler Die Erkrankungen des Auges im Zusammenhang mit anderen Krankheiten Wien, 1898 p. 352

[10] As this thyroid preparation used is a proprietary which has not been passed on by the Council on Pharmacy and Chemistry the name by which it is known commercially is here omitted —Ed.

[11] Sanesi Missoedema spontaneo degli adulti Clin med ital 1899 Cited by Gourfein Welt[17]

[12] Wagner Augenerkrankungen bei Myxoedem, Klin. Monatsbl f. Augenh 1900 p 473.

[13] Burchard Ein Fall von Akromegalie kombiniert mit Myxoedem Petersb med Wchnschr 1901 p 481 Cited by Berliner

[14] Bolte Beitrag zur Kasuistik des Myxoedems Char Ann 1903 xxviii

[15] Pollack Fall von Myxoedem mit Sehnervenatrophie Verhandl d Berl Ophth Gesellsch Centralbl f prakt Augenh 1905 p 355

[16] Meyer W Verhandl. d. Gesellsch deutsch Naturforscher u Aerzte zu Stuttgart 1906 ii 234 Cited by Berliner (Note 19)

[17] Gourfein Welt *Lesions oculaires dans le myxoedeme spontané des adultes* Arch d Ophth 1897 p 761

[18] Moore Myxedema with Optic Atrophy Proc Roy Soc Med May 1908 p 191

[19] Berliner Opticusatrophie bei Myxoedem Inaug Dissert Freiburg i Br 1909

[20] Souroff A Case of Simple Myxedema Complicated by Atrophy of the Optic Nerve Westnik Ophthal xxvi 617 I am indebted to Dr M J Konikow of Boston for a literal translation of this article

[21] Hennicke Augenerkrankungen bei Myxoedem Klin Monatsbl f Augenh, November 1911 p 559

Concerning Zander's observations on the normal position of the chiasm it will be recalled that this structure was found on one side or the other of the median line in about 60 per cent of the cases and it was also usually situated so that the hypophysis came to lie anteriorly Despite these findings Bartels states that in an analysis of thirty nine autopsies but three growths those of Sachs Uhthoff and Erdheim—to which may be added a later case observed by Moskalew—were found anterior to the chiasm He explains that growths situated beneath or anterior to the chiasm cause a constriction of the optic nerves by pressing these structures against the overlying anterior cerebral arteries whereas those situated posteriorly to the chiasm would compress this structure between the growth and the structure situated anteriorly, and cause the optic tract to be compressed by the carotid artery

Inasmuch as deep lesions may produce constriction of the visual tracts, it seems possible that higher basal lesions might also produce constriction of these tracts by pressing some portion of the vascular circle downward, especially if we recall that this pressure may be sufficient to cause an enlargement of the sella turcica, as has been observed by Oppenheim in a case of hydrocephalus In fact Türck has observed an indentation of the optic tract by the posterior communicating artery as the result of acute hydrocephalus This naturally brings us to the most interesting observation by Foster Kennedy concerning the existence of retrobulbar neuritis as a diagnostic sign in certain tumors and abscesses of the frontal lobe He points out that in the presence of a growth in the frontal lobe there may exist a central scotoma and optic atrophy on the side of the lesion associated with a contralateral choked disk these changes being brought about by pressure of the growth on the optic nerve

Dr F H Verhoeff, Boston Drs de Schweinitz and Holloway have pointed out that a central scotoma occurs in hypophysis enlargements more often than is generally supposed but they are unable to offer a satisfactory explanation of the fact A case in which I performed a necropsy five years ago seems to throw considerable light on the question although it was not one of hypophysis disease In this case there was sclerosis and thinning of the wall of the internal carotid artery leading to compression of the optic nerve at its exit from the optic canal On examining the nerve microscopically by suitable methods I was surprised to find that the papillomacular bundle was completely degenerated whereas the remainder of the nerve was little affected This shows quite conclusively it seems to me that pressure on the nerve anywhere may affect the papillomacular bundle first which affords a probable explanation of the central scotoma in hypophysis disease It accords with the fact that this bundle is specially sensitive to deleterious influences Possibly if the pressure was pulsating owing to a vessel being pressed against the nerve by the growth as in cases cited by Drs de Schweinitz and Holloway the effect on the papillomacular bundle would be especially pronounced

Dr F Park Lewis Buffalo I think it important to report seemingly unusual cases as such cases when brought to our notice not infrequently are duplicated in the practice of others oftener than we realize The remarks made by Dr de Schweinitz and emphasized by Dr Holloway that the selective affinity of toxins for various groups may be found otherwise than in the macular bundle seems to me will bear still further emphasis A ca[illegible] in point was an example in the re[illegible] which came to my no[illegible] very lately [illegible] limited by [illegible] macula That c[illegible] three years [illegible] from that [illegible] over half [illegible] think is one which came under my observation a dozen years ago, which is worth reporting for two reasons first because of an involvement of the optic nerve with loss of vision to about one fourth which largely improved under the use of pituitary extract The theory on which it was given was that there was a hypertrophy of the pituitary with limited secretion and by giving the extract this would be replaced Whatever may have been the truth of the theory, the fact was that under the administration of the pituitary extract continued throughout a period of two years, the vision was improved to about one half, at which it remained While the patient not gaining further was lost sight of, I have every reason to believe the vision has remained at about one half

Dr T B Holloway, Philadelphia Dr Verhoeff's observation on the optic nerve confirms Kennedy's interesting observation that pressure of the brain on the nerve was responsible for the central scotoma inasmuch as he regarded the papillomacular bundle as being the most sensitive of the various tracts

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VISUAL DISTURBANCES FROM DISTANT HEMORRHAGE

WILLIAM ZENTMAYER, MD
PHILADELPHIA

Disturbance of vision from loss of blood is of comparatively rare occurrence Dufur found it but once in 30,000 eye cases But the fact that hemorrhage from almost any part of the body and arising from almost any cause may have this grave sequel makes the condition one of considerable importance to the surgeon internist and ophthalmic surgeon

The exhaustive analysis made by Singer of the 198 cases of disturbances of vision following loss of blood appearing in literature up to 1901, together with a study of those since reported, demonstrate the great diversity of the ocular phenomena, and indicates that the pathogenesis is not the same in all cases

FACTORS IN THIS CONDITION

Sex—It occurs with greater frequency in females than in males, principally for physiologic reasons, but the more frequent occurrence in males of intestinal hemorrhage from ulcer of the duodenum tends somewhat to equalize the relative frequency of its occurrence in the sexes

Age—The decades between 20 and 50 years furnish most of the cases and in the earlier of these the women are in the majority for the same reason of its more frequent occurrence in this sex

Occupation and Station in Life—Perhaps neither of these is a consequential factor The latter may be of some importance as in the poorly nourished a hemorrhage might have more effect on the delicate structures of the retina than in the robust

Time of Occurrence—In many cases the visual disturbance comes on immediately or within the first few hours following the hemorrhage, but in some cases the vision fails gradually, reaching its lowest after many weeks

Effects on Visual Acuity—In 88 per cent both eyes were affected, in 12 per cent one eye In the bilateral cases 59 per cent of patients were totally blind In [illegible] per cent there was amblyopia in each eye and in [illegible] per cent there was amaurosis in one eye and amblyopia in a differing degree in the other

Field of Vision—Of the cases in which the literature recount the changes in the visual fields in 21 per cent there was peripheral contraction In [illegible] per cent there [illegible] In 7[illegible] per cent the upper field was lost, in 23 per cent the lower field was lost In 10 per cent there was hemianopsia In a certain percentage of these it is a question whether it was not a simulated hemianopsia in optic nerve atrophy In 13 per cent there was a central scotoma

Ophthalmoscopy—In a few cases the ophthalmoscopic changes were either negative or slight In the remaining cases there was either beginning neuritis, decided neuritis, papilledema or optic atrophy, either primary or consecutive Other changes noted were edema of the retina and hemorrhages

Prognosis—A Relative to time of hemorrhage Of the cases in which the visual disturbance was coincident with the hemorrhage, improvement occurred in 22 per cent, of those in which it occurred within the first twelve hours improvement in 71 per cent, between 12 hours and ten days 41 5 per cent, and after the ten days 50 per cent

B Relative to the nature of the hemorrhage No improvement or a deterioration took place in 51 per cent of the cases of intestinal hemorrhage, in 42 per cent of uterine hemorrhage, in 62 per cent of nasal hemorrhage, in 48 per cent of hemorrhages from wounds

C Relative to the nature of the visual defect Apparently those cases with central scotoma gave the best prognosis

Condition of the Patient at Time of Hemorrhage—One of the most interesting questions in connection with this subject is the condition of the patient previous to and at the time of the hemorrhage In many of the reported cases the patient was said to be strong and in good health But naturally, in very many the underlying cause of the hemorrhage or the repeated hemorrhages culminating in the visual disturbance had greatly lowered the power of resistance

Nature of the Hemorrhage—There may have been but a single hemorrhage or there may have been several hemorrhages The quantity of blood lost has varied from a slight amount to a profuse exsanguinating loss

Source of the Hemorrhage—As has been stated above, hemorrhage from any source may cause defects in the vision, but in fully 70 per cent the bleeding was from the gastro intestinal tract and uterus Other causes are hemoptysis, venesection, cupping, epistaxis, wounds, hemorrhage from the gums following extraction of teeth, and from the urethra

Considering the frequency of the occurrence of severe hemorrhage on battlefields, after lacerated wounds incurred in occupations, and formerly during extensive surgical operations, and the rarity with which any of these enter into the etiology of visual disturbance following loss of blood (DeWecker and Knies did not observe a case in the Franco-Prussian War), one is forced to the conclusion that there is some other factor in its production than the resulting anemia Certainly it does not seem reasonable to consider a man to have been in good health, as has been done in some of the case histories, who suffers a severe gastric or enteric hemorrhage Usually such hemorrhages result from an ulceration consequent on a chronic inflammation of the stomach or duodenum which had in its train, malnutrition, anemia, nervousness and insomnia from indigestion and autointoxication Nor can those cases occurring after venesection be looked on as the result of simple anemia, as no perfectly healthy individual requires blood-letting Many of the cases of uterine hemorrhage occurred in pregnant women and followed abortion, premature birth, placenta previa, extraction of the placenta or retained membranes or were associated with uterine growths—all conditions likely to be associated with the generation and absorption of toxins There remains a large group of cases in which no thorough physical examination was made, the dependence of the ocular symptoms on the hemorrhage seeming so conclusive that a search for the predisposing cause was neglected I am quite certain that in one of my own cases only the careful study of the patient by a competent neurologist would have resulted in the discovery of the cerebrospinal symptoms and only by our modern clinical methods could the syphilitic nature of the condition have been determined, as the patient had denied infection

In the other case the history supplied by Dr Tyson, gave the clue to the contributing factor, but direct dependence of the amblyopia on the uterine hemorrhage and the absence of renal symptoms at the time of the visual disturbance, might have caused the previous existence of a nephritis to have been overlooked

PATHOLOGY AND PATHOGENESIS

In the case examined by E Ziegler there was a decided fatty degeneration of the connective elements of the retina and optic nerve, especially in the scleral portion No inflammatory products were found, so that he concludes that the changes are those of ischemic degeneration

Weeks says that "it is to-day fully recognized that the blindness is due to degeneration of the ganglion cells, primarily because of interference with their nutrition," but, as Holden has said there are cases in which the clinical findings cannot be thus explained, and Gowers and De Lapersonne admit that the pathogenesis is not the same in all cases Wildbrand and Saenger say that we know nothing definitely concerning the pathogenesis As but three cases have been studied microscopically, in two of which considerable time had elapsed since the hemorrhage, and none of these since the employment of modern staining methods, we are therefore largely dependent on animal experimentation for our knowledge of the changes induced in the eye by the loss of blood These experiments first made by Holden demonstrated degeneration of a number of retinal ganglion cells together with their long processes which make up the centripetal fibers of the optic nerve

Von Graefe supposed that a hemorrhage occurred into the optic nerve-sheath or into the interstitial tissue of the nerve As pointed out by Carlini, this would not explain those cases in which the amaurosis occurred late Leber modified this theory by adding the possibility of an acute inflammation or extravasation affecting also the base of the brain Horstmann considered those cases following epistaxis to be due to meningitis followed by a descending optic neuritis Samelsohn's explanation is that the cerebral anemia leads to an increase in the ventricular and subarachnoid fluid With a refilling of the cerebral vessels the fluid is forced into the lymph spaces of the optic nerve causing an optic neuritis with increase in the interstitial tissue and pressure on the central vessels and finally optic atrophy Litten's case of amblyopia with optic neuritis following the removal of an ascites lends support to the theory of Samelsohn, and this is a tenable theory for cases accompanied by papilledema

Knies believes that a retrobulbar neuritis develops as the result of extravasation from vessels with diseased walls—an explanation that might be accepted for cases in which there are primarily no visible ophthalmoscopic changes but later atrophy of the optic nerve

Ziegler explains those cases occurring after slight hemorrhages as due to contraction of the vessels from excitation of an impressionable vasomotor system. Theobald gives as a possible cause, in some cases, thrombosis of the central artery of the retina and of the cavernous sinus.

Undoubtedly the theory of retinal ischemia with degeneration of the ganglion cells supported as it is by animal experimentation best explains the majority of cases, but does not apply to cases in which the amblyopia does not come on until after the time when the normal circulation has been restored. Neither does it explain cases of true hemianopsia, or true papilledema, or rare cases of which Carlini's is an example in which no fundus changes were noticed as late as two months after the hemorrhage, but nevertheless a quadrantanopsia had resulted.

Cortical changes are the probable cause of homonymous hemianopsia. A study of the visual fields shows that there are groups of cases in which the fields are representative of the fields seen in the different forms of toxemia and that there is an exceptionally large group (the superior and inferior pseudohemianopsias) in which the fields differ greatly from any of the types significant of toxemia.

It seems impossible to reconcile these widely differing findings with a theory which would attribute all to one pathogenesis. In this connection it is interesting to recall that a similar pathogenesis has been advanced and largely accepted for the amblyopia produced by quinin and some other toxic agents but that the question of the primary lesion in tobacco-alcohol amblyopia may still be considered *sub judice* is shown by the consideration of the subject in the 1912 edition of Fuchs' textbook. The similarity of the fields in some of the cases of amblyopia from loss of blood with those found by Rönne in various forms of optic nerve atrophy and in glaucoma and which he attributes to the anatomic arrangement of the optic nerve fibers in the retina and therefore indicative of the lesion being in the optic nerve rather than in the ganglion cells of the retina is of further interest in relation to this question.

From a purely theoretical consideration of the question it would seem plausible to assign retinal ischemia with degeneration of the ganglion cells of the retina as an explanation of those cases showing peripheral contraction and in some cases central scotoma, retrobulbar neuritis for those with central scotoma with little impairment of the extent of the field, and cortical lesions for those with true lateral hemianopsia, and those showing no changes in the papilla after the lapse of sufficient time for atrophy to have set in from either retinal or retrobulbar involvement, and simple atrophy or postneuritic atrophy for those with marked superior or inferior contraction of the fields.

There are several known facts in connection with ischemia of retina which invalidate in a measure the application of this theory even to all of the cases with contracted fields. They are that several cases are known in which blindness from this cause has been fully recovered from, after persisting for many hours, that the blindness in spasm of the central artery of the retina is coincident with the spasm, and that in quinin amaurosis, in which ophthalmoscopically the ischemia is evident, vision usually improves after a time, whereas in amblyopia from hemorrhage the impairment of vision is often late in appearing and rarely improves.

As Knies has said concerning a predisposing cause leading to the amblyopia, the affected individuals are either not in vigorous health or are positively ill, and often, as Haab intimates, there is present an abnormal condition of the blood. These are not only undoubted factors in the production of the amblyopia but also in the modification of the phenomena usually associated with retinal ischemia.

TREATMENT

As failure of vision is often delayed for some days it is important that prophylactic measures be taken in all cases of severe hemorrhage. In the few instances in which hypodermoclysis or the injection of blood serum, has been employed on the first sign of visual disturbance the results have been such as to encourage the belief that, except in those cases in which the blindness and the hemorrhage occur simultaneously, the immediate employment of such measures as the above may prove of value. The after-treatment should consist in the use of chalybeates and vascular and nerve stimulants.

REPORTS OF CASES

My own cases are the following:

CASE A.—*Patient.*—Mrs. S. K., aged 24, was sent to me by Dr. James Tyson, Feb. 26, 1896. One year previously she

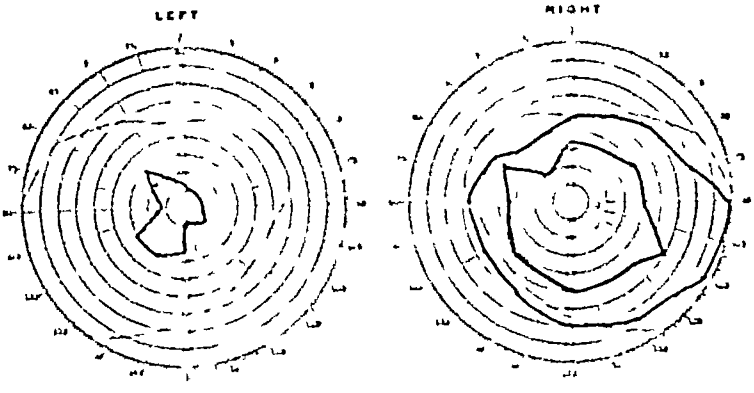

FIG. 1.—Form and red fields, right and left eyes in Case A, Mrs. K., Feb. 26, 1896.

had had puerperal nephritis but had recovered from this. A few weeks before consultation during a rather severe metrorrhagia the eyesight became suddenly affected. She thought that there had been some slight impairment after the confinement the previous May but that distinct failure of vision dated from four attacks of bleeding each lasting three or four days occurring within the past six weeks.

Examination.—The refraction and vision acuity were as follows:

O. D. — 0.50 ⌢ + 1.25 c. ax. 110 = 5/5
O. S. + 0.75 ⌢ + 0.75 c. ax. 90 = 5/12

Pupils were equal. Irises responded sluggishly to light and accommodation. In both eyes the papillae were very pale, arteries and veins about normal. Scattered throughout the retina were a very few minute discrete yellowish points. In the right eye there were but three or four while in the left eye there were several between the papilla and macula. There were neither splotches nor hemorrhages present. The field of vision in the right eye showed some contraction up and in (Fig. 1, right); that of the left eye was very small and of irregular shape, being contracted to within 10° of fixation both to the temporal and nasal sides (Fig. 1, left).

Course.—She was under observation four months. At the end of that time the left optic papilla was distinctly atrophic. Vision was, in the right eye 5/6, left eye 5/7.5. The field of the left eye had gradually widened, finally assuming an almost typical hemianopic form (Fig. 2). Dr. Tyson's notes show that Mrs K. came under his care in April, 1895 There was a history of hematuria three years previously She had been married three years The first child went to term thirteen months after marriage She had been pregnant since October, 1894 In April, 1895, the urine was 8/10 bulk albumin, with numerous casts, specific gravity 1 025 She miscarried at the eighth month The amount of albumin gradually diminished and in September, 1895, there was a bare trace "would pass as normal" The urine remained free from albumin and casts up to the time she passed from under observation, June 18, 1896 Dr Barton Cook Hirst's examination showed a subinvoluted uterus, pulled to the left side and backward by adhesions, but not turned over backward.

Case B—*Patient*—C H, male, aged 36, ice-cream maker, came to Wills Hospital Jan 2, 1912, because of failing sight For the previous six years he had been treated from time to time for the relief of symptoms of chronic gastric catarrh Shortly after midnight of Nov 5, 1911, he had a severe hemorrhage from the mouth, apparently coming from the stomach He was seen at 2 a m by Dr A B Reader of Camden, N J, to whom I am indebted, in part for the following notes of that illness The hemorrhage had been very large, according to the patient's statement, at least a pint. One week later he had a second hemorrhage when about half as much blood was lost Repeated examination of the stomach contents showed the presence of large quantities of hydrochloric acid, as much as 0 21 per cent Occult blood showed in the stools one week after the hemorrhage and persisted for four weeks The anemia following the bleeding was very marked until quite recently During the second week, that is after the second hemorrhage, he complained of difficulty in keeping his eyes open and of failing vision By the sixth week he was able to be up and dressed After the hemorrhage he had considerable pain over the bridge of the nose and in the frontal region It was, however, not until the fourth week that he noticed the decided impairment of the vision of the right eye, and one week later that of the left eye According to the patient's statements, there is nothing in the previous personal or in the family history relevant to the present trouble

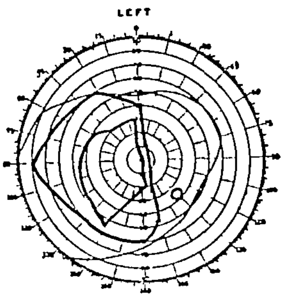

Fig 2—Form and color fields left eye Case A Mrs K June 18 1896

Examination—Vision was, in the right eye, 6/150, in the left 6/6 The right pupil was oval 4 by 5 mm, long axis 30°, eccentric down and in The left pupil was round, 5 mm in diameter Both irises reacted to light and convergence Both optic papillæ showed extreme atrophic pallor, the arteries were somewhat reduced in diameter, especially the superior branch *in the right eye The veins were about normal in appearance* The edges of the disks and the laminæ cribrosæ were well defined At the upper margin of the right disk there was an area of superficial disturbance of the chorioid Both visual fields were greatly contracted, the lower half of the right field including fixation, and almost the entire lower half of the left field being completely gone (Fig 3)

The patient was sent to Dr T H Weisenburg for examination, who reported as follows "There is a weakness of the lower part of the left face with protrusion of the tongue to the left and lessened action of the palate Power in all of the limbs is less than it should be and the reflexes are very prompt but there is no Babinski There is some ataxia in the finger to the nose test in the left upper limb, and station is somewhat impaired but the gait is normal There is a history of girdle pains and occasional pain of a shooting character in the thighs and upper limbs Wassermann reaction positive. Blood examination normal Considering the multiplicity of the lesions it is possible that the patient has cerebrospinal lues" Dr Weisenburg has called my attention to the fact that gastric hemorrhage has been reported as a crisis in tabes dorsalis

Course—Dr Reader was informed of the results of the examination and was advised to use antisyphilitic remedies I subsequently learned that the patient had been given salvarsan intravenously as a part of this treatment The patient was last seen Feb 19, 1912, about two weeks after the use of the salvarsan Vision was unchanged The visual fields showed further contraction The fundus showed no alteration

CASES IN LITERATURE

Following is an abstract of the cases of disturbance of vision following distant hemorrhage which I have been able to find in literature of the past ten years This in connection with the paper of Singer gives a fairly complete bibliography of the subject to date

Case 1—Frankel,[1] 1901 Male, aged 46 Gastric hemorrhage, visual disturbance fourteen days afterward Right eye papilla blurred, arteries irregular in caliber Left eye, margins of papilla better defined Right eye remained blind, left eye concentrically contracted field Some improvement Author believes that in unilateral atrophy local arteriosclerosis plays a part

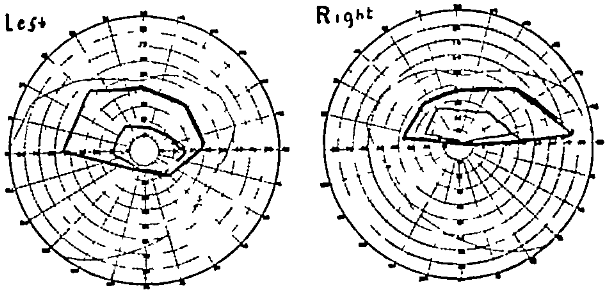

Fig 3—Form and red fields Case B Mr H Jan 16 1912

Case 2—Spiller,[2] 1901 Male, aged 51, apparently healthy and strong Severe repeated gastro intestinal hemorrhage On regaining full consciousness, fourteen days later, left eye blind right eye impaired Ophthalmic examination two months later showed middle grade gray atrophy of papilla Left eye blind, right eye 6/6 No further change occurred Marked general arteriosclerosis

Case 3—Laqueur[3] 1903 Female, aged 39 Hemorrhage from stomach Right eye blind six days after hemorrhage Atrophy of the papilla Later fingers counted in temporal field

Case 4—Gallemaerts,[4] 1904 Female Metrorrhagia Visual disturbance began four days later Complete optic atrophy on one side, incomplete on the other

Case 5—Snell[5] 1904 Female, aged 28 Hemorrhage from *retained placenta No albumin Atrophy of the optic nerve*

Case 6—Stirling[6] 1904 Male aged 6 Hemorrhage after extraction of tooth lasting three or four days Previous attack of excessive bleeding Visual disturbance immediately on regaining consciousness Vision in right eye fingers at 6 inches Field concentrically contracted to within 15° 20° of fixation Right eye postneuritic atrophy Papillæ chalky white Arteries diminished in size

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[1] Frankel Med Woche No 17 1901
[2] Spiller These de Kiel 1901
[3] Laqueur Klin therap Wchnschr 1903 No [illegible]
[4] Gallemaerts Policlinique October 1904
[5] Snell Tr Ophth Soc U Kingdom xxiv 1904
[6] Stirling Ophth Rec 1904

CASE 7 —Felix,[7] 1905 Female. Uterine hemorrhage from abortion Right eye remained blind, left eye recovered central vision In the field there were scotomatous areas

CASE 8 —Carlini,[8] 1906 Male, aged 23 Traumatic hemorrhage from radial Unconscious with convulsions Next day complete blindness, pupils react. Two months later left homonymous inferior quadrant hemianopsia Right eye, 5/50, left eye, 5/50 Fundus was and remained absolutely normal in appearance Author assumes an edema affecting both cortical centers

CASE 9 —Porell,[9] 1908 Female, aged 16 Metrorrhagia Complete and permanent blindness Papillæ chalky white

CASE 10 —Marquez,[10] 1908 Female, aged 25 Hemorrhage following extraction of a tooth, lasting six days Both eyes blind Optic atrophy Author attributes it to lowered blood pressure, intra ocular tension assisting in the impairment of the retinal circulation

CASE 11 —Marek,[11] 1909 Female, aged 46 Intractable uterine hemorrhage for eighteen months Failure began one year after onset of illness Right eye, 5/20, left eye, 5/15 Fields concentrically contracted Low grade optic neuritis Rapid improvement in all conditions after removal of uterus Fields remained contracted

CASE 12 —Bistis,[12] 1909 Male Severe epistaxis Right eye, 1/6, left, 1/2 Visual fields contracted Postneuritic atrophy

CASE 13 —Bistis [12] 1909 Female Severe uterine hemorrhage following attempt at abortion O D 1/10 Absolute central scotoma without peripheral impairment Postneuritic atrophy

CASE 14 —Moore,[13] 1911 Female, aged 56 Repeated hemorrhages from the stomach Visual disturbance five days later Both eyes blind No subsequent improvement Papillæ very white Vessels small "Railway truck" appearance of vessels on pressure

CASE 15 —Moore,[13] 1911 Male, 43 years Recurring hemorrhages *from stomach* Few hours after second hemorrhage left eye blind, four days later right eye blind Later, hand movements Papillæ pale and blood currents very pale

CASE 16 —Moore,[13] 1911 Male, aged 41 Hemorrhoids for ten years Right eye counts fingers at 1 foot, left eye 3/60 Both eyes, visual fields full Complete central scotoma averaging 10° in right eye, partial central scotoma in left eye

CASE 17 —Moore,[13] 1911 Female, aged 34 Hemorrhage following miscarriage. Visual disturbance day after hemorrhage In ten days right and left eye blind, eight weeks later, right eye, hand movements, left eye, 6/18, field irregularly contracted to 20° Small upper temporal field four months later, no change Both papillæ pale and edematous In right eye, +2 50 D , in left eye, 5+1 50 D Later, little change in vision but less swelling of papillæ

CASE 18 —Zentmayer, 1912 Male, aged 36 (Case B reported above) Two severe hemorrhages from stomach One week from first, or immediately after second, vision began to fail Seen nine weeks from this time Right eye, 6/150, left eye, 6/6 Inferior hemianopsia with preservation of fixation in O S Papillæ atrophic Arteries somewhat contracted Some nervous symptoms suggestive of cerebrospinal lues Wassermann positive

CASE 19 —Zentmayer, 1912 Female, aged 24 (Case A, reported above) Metrorrhagia following puerperal nephritis Vision began to fail during the course of several hemorrhages Right eye, 6/10 left eye, 6/18 Papillæ pale arteries and veins about normal Right eye slight contraction of field up and in left eye small *irregular* central field Four months later vision improved Field of left eye almost typically hemianopsia

CASE 20 —Weeks [14] 1911 Male Hemorrhage from stomach, single severe. One eye blind, other 20/50 Concentric contraction

CASE 21 —Weeks,[14] 1911 Female Uterine hemorrhage more or less constant for fourteen days Counts fingers at 2 feet

CASE 22.—Hegner,[15] 1912 Hemorrhage from stomach Total blindness Postneuritic atrophy

CASE 23 —Hegner,[15] 1912. Hemorrhage from stomach Total blindness Postneuritic atrophy

CASE 24 —Hegner,[15] 1912 Hemorrhage from the stomach Left eye blind, right eye marked defect in visual field Author attributes visual trouble to ischemia of optic nerve, and retina the result of the anemia

ABSTRACT OF DISCUSSION

DR. E C ELLETT, Memphis, Tenn Two years ago I published a report of a case similar to this, but probably on account of the title Dr Zentmayer has overlooked it It is interesting not only on account of the changes in the optic nerve, such as Dr Zentmayer has cited as being present in the twenty four cases from the literature, but there was also pigmentary degeneration of the retina, associated with retinitis proliferans The patient, who was observed in 1903, drank a good deal of whisky, and ultimately died of uremia, so that I presume at that time he had a nephritis There was a history of hemorrhage, but the patient said it was from the bowel, and his physician said it was from the genito urinary tract The patient was in bed about three weeks, and it was therefore three weeks after the hemorrhage before I saw him, at which time he complained of blurring of the vision in one eye I examined the eye ground but could find nothing to explain the blurring Unfortunately, I did not take the field of vision He was going south for his health and I referred him to Dr Bruns who found a few retinal hemorrhages, about two weeks after my visit In the paper I summarized what I understood to have happened as follows

We had a general hemorrhage or hemorrhages, followed by edema, and then hemorrhages of the retina, not coming on for some weeks As a result of this hemorrhage a degeneration of the retinal ganglion cells followed, that in time leading to atrophy of the retina and optic nerve As features of the atrophy of the retina, we note liberation of retinal pigment with massing of it in the intercellular spaces and vessel walls in the degenerated area The irritation of the retinal hemorrhages produced a proliferation of the retinal connective tissue elements In the eye ground the pallor of the nerve and wasting of the vessels can be seen, while the accumulation of retinal pigment in a ring shape around the disk marks the extent to which the retinal degeneration had approached the nerve, near which, of course, nutrition was best preserved Within the pigmented ring the retinal epithelium is preserved Outside of this ring the chorioidal circulation is made visible by the removal of the pigment layer of the retina"

DR. HIRAM WOODS, Baltimore To note all conditions present by modern laboratory methods of diagnosis is necessary, because blindness from distant hemorrhage is very rare, and profuse hemorrhage very frequent, consequently there must be something beside the hemorrhage Toxemia is to be considered, because (1) toxic symptoms are noted in all the troubles producing the hemorrhage—duodenal ulcer uterine disease etc (2) toxemia is common in the disorders for which venesection is done and venesection has been followed by blindness, (3) the variety of blindness observed is such as we see in toxic conditions—central scotoma, field scotoma hemianopsia, etc *It is not claimed that this is "entirely satisfactory*, but it is suggestive *Even in cases of blind*ness following hemorrhage from tooth extraction, when the individual was thought to be in normal condition, the reason for the hemorrhage is still missing We know very little about the causes of profuse bleeding after such slight injuries but its occurrence indicates something wrong with the health Fuchs gives as causes of blindness in such cases protracted inflammation, embolism and thrombosis In such cases, the nerve head itself shows secondary atrophy Fuchs does not mention profuse, distant hemorrhage as the cause of retinal anemia or atrophy He does, however, give as a cause of optic neuritis "acute anemia after great loss of blood the most frequent variety being that due to hemorrhage of the stomach and to metrorrhagia" In other words, Fuchs puts the primary ocular manifestation of the distant hemorrhage in the nerve The fact that, in twenty out of twenty four cases quoted from literature, there were definite nerve lesions, papillitis, postneuritic atrophy and simple atrophy, to my mind strengthens Dr Zentmayer's hypothesis that retinal ischemia, with degeneration of the retinal cells, may account for cases showing peripheral contraction, and possibly some of the cases of central scotoma, but that retrobulbar neuritis, or neuritis with secondary atrophy, due to a variety of intracranial lesions, more thoroughly explains clinical findings

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[7] Felix Arch d ophth, xxv 73

[8] Carlini Clinica Oculistica, February 1906 Ann. Ophth April 1 06

[9] Porell Med Klin Nov 13, 1905.

[10] Marquez Siglo Med Jan 4 1905

[11] Marek Wien klin Wchnschr June 10 1909

[12] Bistis Arch d ophth January 1908

[13] Moore St Barth Hosp Rep xlvi, 174.

[14] Weeks [illegible] 1911

[15] Hegner Klin Monatsbl f Augenh, January 1912, p 119

Another hypothesis is tenable, and it corresponds somewhat closely with the theory of cell degeneration from ischemia Case histories indicate that in a certain number nerve lesion is observed late The order of pathologic changes given by Samelsohn and quoted by Dr Zentmayer might explain the hemiopic cases on the theory of ischemia Some vision was spared because the secondary atrophy was slight, while the cortical cells were killed by lack of nutrition Again, degeneration of retinal cells would be explained by cutting off nutrition through pressure on the vessels during the atrophic process in the nerve

DR SAMUEL THEOBALD, Baltimore Dr Zentmayer referred to the suggestion which I made several years since as to the etiology of blindness following the acute anemia of hemorrhage It is known that after great loss of blood there is a tendency to the development of thrombi, and that the thrombus is apt to occur wherever there happens to be some pressure, some point of resistance to the flow of blood, the disposition to such thrombotic formation being due to diminished pressure of the blood, to alteration in its character, and, probably, also to consequent changes in the vessel walls The theory suggested as to the result of my study of a case of blindness following severe hemorrhage from the stomach—in which the ophthalmoscope showed atrophy of the optic nerves and retina, secondary to neuroretinitis—was that the resistance opposed to the enfeebled blood current by the intraocular tension caused the formation of a thrombus in the central artery of the retina, just back of the lamina cribrosa I am still of the opinion that this theory affords a more satisfactory examination of the intraocular changes observed in posthemorrhagic blindness than any other that has been advanced

DR WILLIAM M SWEET, Philadelphia About ten years ago I reported before the American Ophthalmological Society a case of optic atrophy following intestinal hemorrhage The man was a healthy driver of a dray, aged 57 who was attacked by vertigo on his way to work The dizziness and muscular weakness compelled him to return home and go to bed The same evening he took a large dose of calcined magnesia, and during the night had a large movement of the bowels which almost filled the two quart receptacle, and was found the next morning to consist almost entirely of clotted blood Later in the day there was another bowel movement almost equal in quantity to the first but the blood was brighter in color On the morning of the sixth day, the vision became blurred, and by evening there was loss of perception of light in the left eye, and only light perception in the right eye in a small area to the right of the fixing point. Ophthalmoscopic examination showed the optic disk pale, the nerve margins slightly hazy, the retinal arteries moderately contracted, the retinal veins full but not tortuous, and the retina edematous From the lower portion of the disk of the right eye a cilioretinal artery passed toward the fovea Examination of the abdomen failed to show any area of dulness or tenderness to account for the hemorrhages The blood examination showed hemoglobin, 38 per cent red corpuscles, 2,088,000, and white 20 900 The case was under observation for four years. During this time there was no return of vision in the left eye, and only a slight increase in the size of the preserved field in the right eye which was about 15 degrees wide and extended temporarily from the fixing point to the 40 degree line on the chart.

Although the result of experimental studies points to degeneration of the retinal ganglion cells secondary to abnormal changes in the blood acting on the vasomotor system as the cause of blindness, there would appear to be some other factor in many of the cases The preservation of a small area in the field in the right eye of the case mentioned may have been due to an anastomosis of the cilioretinal blood vessel, although the factors which caused the constriction of the central retinal vessel and its branches would apparently have exerted a similar influence on this artery

DR ADOLF ALT, St Louis The case referred to by Dr Zentmayer of blindness after hemorrhage is similar to a case now under my care The patient is a strongly built man the driver of a brewery wagon What other diseases he may have had I do not know He came to the hospital on account of an ulcer of the stomach While there lying in bed he had a severe hemorrhage from the stomach so severe that he became unconscious for some time When he awoke he was blind and I was called to examine his eyes There was an absolute ischemia of both eyes It was a day or two after the occurrence that I saw him, and with one eye he counted my fingers perhaps at six feet With the other he saw nothing at all I have had the man under my observation since The stomach has been treated by the general practitioner I have given the patient iron, strychnin, etc In this case quite an appreciable amount of sight has returned The eye which was wholly blind counts fingers now at eight feet in a very small central field The other eye has now 20/20 vision, with correction of the myopia and astigmatism, and without correction has 20 40 in a small field, originally was 10° or 15°, now is between 15° and 20° He could barely move his legs at first, now he walks about better, but like a man with telescopic vision I believe the whole thing is simply due to lack of nutrition of the smaller arteries for so many hours and with beginning disintegration of the nerve elements which in this case improved when the blood pressure became high enough

I have had another case of atrophy in one eye due to an intranasal operation the nature of which I have forgotten The patient bled all through the night and came to me the next day because he was blind on that side If I remember aright he got better again but I do not remember exactly what the condition was later on I saw him only a few times

DR. WILLIAM ZENTMAYER, Philadelphia Dr Theobald, your case occurred in the earlier series so I do not recall its details Can you tell me whether one or both eyes were affected?

DR. SAMUEL THEOBALD, Baltimore The matter is nebulous in my mind but my recollection is that only one eye was involved

DR WILLIAM ZENTMAYER, Philadelphia In only about 12 per cent was there monocular blindness These are the only cases that can be explained by thrombosis I think Dr Alt's case was caused by an embolus carried into the circulation The same thing occurred in the practice of one of our Philadelphia rhinologists In this case there was unilateral sudden blindness following an intranasal operation Dr Alt's first case was probably one of ischemia of the retina and as in quinin blindness improvement in vision occurred As we know, quinin blindness is due to ischemia with resulting degeneration of the retinal ganglion cells The explanation of the pathogenesis is evident in Dr Alt's case

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THE PROPER PROVISION FOR TEACHING OPHTHALMOLOGY IN THE MEDICAL SCHOOLS

EDWARD JACKSON M D

DENVER

Ophthalmology, always a distinct department of medicine, embraced a great mass of clinical facts as shown in the books of Mackenzie and Desmarres, before the work of Helmholtz, Graefe and Donders caused its rapid extension in the middle of the nineteenth century. Walton, Lawrence, Bowman, Sichel, Stellwag and other able men had found it an ample field for a life time of study.

The routine use of the ophthalmoscope and the test lenses enormously increased the extent and practical importance of this branch of medicine. It inspired able men of the younger generation with an interest that made it their life work. Jaeger, Arlt, Schweigger, Argyll Robertson are only specimen names from those of the host who, fifty years ago, saw in ophthalmic science the highest development of medical science, and in ophthalmic practice the highest, most exact application of medical art. Williams, Agnew, Noyes and Norris brought the inspiration of the new ophthalmology to America. Hughlings Jackson and Clifford Allbutt took the eye-mirror to throw light on obscure realms of internal medicine. Still active are Hirschberg, Fuchs, Haab, Landolt, Motais, Nettleship, Swanzy, John Green and hundreds of others who have devoted long and busy lives to a science and art that gave ample scope to all their powers. They and their students after them have continued to extend the boundaries of ophthalmic science and art in every direction.

By the labor of these leaders has been developed modern ophthalmology, the proper teaching of which we are to discuss. The catalogue of Hirschberg's collection of its literature occupies 336 octavo pages. The list of books, transactions, monographs and journal articles appearing in the year 1911 takes 151 pages and includes 3,506 titles. They constitute in the aggregate between 20,000 and 30,000 pages. To engage successfully in ophthalmic practice one does not need to read all that has been written about ophthalmology. But the amount of this literature gives some indication, probably the best statistical indication, of the extent to which the problems of ophthalmology have claimed attention and study from those who have gone before us, and are claiming attention and study from those to-day engaged in ophthalmic practice.

Another estimate of what is to be taught in this branch of medicine might be reached by comparing such treatises as those of Weeks, de Schweinitz or Ball with text-books on medicine or surgery, like those of Osler or Tyson, Da Costa or Park, or by comparing the four-volume system of Norris and Oliver or the Graefe-Saemisch "Handbuch" with Allbutt's "Medicine" or Keen's "Surgery." The monographs of ophthalmology still more strikingly illustrate the greatness of this branch of knowledge. From Donders' book on "Accommodation and Refraction of the Eye" to Wood's two-volume "System of Ophthalmic Operations" or Parsons' four-volume "Pathology of the Eye" there is a long line of monographs, the more important of which must be read by any one who would be counted well informed on the literature of ophthalmology.

Consider it from another point of view. The anatomic relations of the ciliary body, lens, iris root and canal of Schlemm are as important to the ophthalmic surgeon as are those of cranial sutures and eminences, and of the cerebral convolutions to him who would do brain surgery. The exact understanding of the relations of the contents of the orbit and the optic nerve to the neighboring sinuses is as important as that of the relations of the fetal head to the pelvic diameters, which claim so much attention from the student of obstetrics. The [illegible] of the visual apparatus are more complex and [illegible] more space in the text-books of physiology than those of any other special apparatus, except the brain.

In diagnosis the ophthalmologist must master special instruments and methods, the trial set, the ophthalmoscope, the perimeter, the transilluminator, the tonometer, the varied muscle tests. These diagnostic attainments cannot be surpassed for refinement and importance in any other branch of medicine. What procedures in surgery require such delicate exactness, more intelligent planning or more carefully elaborated technic than the extraction of cataract, iridectomy or the plastic operations on the lids?

The ophthalmologist, as a rule, knows more of the requirements and attainments of general medicine and surgery than any one outside of ophthalmic practice knows of the attainments and requirements of ophthalmology. In so far as any one class of men are capable of comparing different branches of medical and surgical practice, the members of this Section, by training and experience, are better fitted to compare the requirements for the proper teaching of ophthalmology with those for other departments of medicine and surgery than are any other group of men in the American medical profession. Do any of you believe that there is any line of work carried on in the medical profession which demands more training, or better training, for its proper performance than that encountered in ophthalmic practice? Occasionally there have been surgeons and physicians who have attained proficiency both in general surgery and general medical practice, and in some departments of ophthalmology—such men as Jonathan Hutchinson, Hughlings Jackson, Clifford Allbutt and Sir William Gowers. And these men without exception have given a relatively high place to the diagnostic and operative methods that belong to ophthalmology. That the knowledge and technic of ophthalmic medicine and surgery should be underrated by those who are ignorant of them is not surprising and has no bearing on a just estimate of their relative importance.

Aside from preparation for devotion to ophthalmology as a special line of practice, consider how much there is in it for study that may be of important service to other branches of medicine. The department of ocular hygiene should dominate the lighting of buildings, the conditions for study in schools and for work in factories and offices, and the prevention of blindness by industrial injuries, ophthalmia neonatorum or trachoma. Not less important are the diagnostic services ophthalmology can render in general medicine and surgery, the light it may throw on general diseases, on such processes as arteriosclerosis and lesions within the cranium. These are but scattering suggestions of the extent of the field of ophthalmology, the breadth of the science to be taught, the refinement of the art into which men and women are to be trained.

In our present educational scheme what is the provision made for teaching ophthalmology and its practical application? The best recognition we have been able to secure in the medical curriculum recommended is fifty hours in the scheme of the Council on Medical Education of the American Medical Association, or sixty hours in that of the Association of American Medical Colleges—less than one-third of the two hundred hours that Jaeger is said to have spent in producing a picture of one eye-ground. This period of sixty hours, or less, is intended to cover the only systematic instruction on ophthalmology given in the best American medical colleges.

The text-books of de Schweinitz or Weeks are practically as large as those of Osler or Da Costa. But ophthalmology is to have fifty or sixty hours, and [illegible] icine or surgery 600 or 800 hours Are the text-books on medicine or surgery so wonderfully condensed, or those on ophthalmology so padded and stuffed with meaningless sentences, or irrelevant statements, that the subject of the latter can be mastered in one-tenth of the time given to the former? Even obstetrics, which has less literature than ophthalmology, gets three or four times as many hours in the medical curriculum

It would be interesting to trace how such an anomalous distribution of time in the course ostensibly intended to prepare for every branch of medical practice had come about But that is another story The point here is that everybody recognizes that the course on ophthalmology in our best medical schools does not prepare any one for ophthalmic practice This is recognized by the professor of ophthalmology who says, "I do not undertake to make ophthalmologists of the students" It is recognized by the honest "general" practitioner, who frankly tells his patients, "I do not undertake to treat diseases of the eye"

What is possible in the brief time allotted to ophthalmology? With bright students who have some preliminary training in physics and a good command of the fundamentals of medicine, it is possible to show what a trial case is and the general outlines of its use, so that the man who is interested and earnest will be able to work out presently the cases which the late Dr Connor has referred to as "simple errors of refraction" It gives opportunity to show the student how he can see into the eye with the ophthalmoscope and to recognize the more striking features of the normal eye-ground and a few of their common variations He can be given a theoretic knowledge of the taking of the visual fields, can be made acquainted with the more constant symptoms of conjunctivitis and iritis He can learn that ophthalmia neonatorum and trachoma are dangerous to sight, and for each a routine treatment He can be told that glaucoma and detachment of the retina, as well as cataract and intra-ocular tumors, cause blindness But with regard to the mass of diseases of the eye, as noted in the twenty-page classification, published two years ago by Duane in the *Transactions of the American Ophthalmological Society,* he can know nothing We may teach him to turn the lid and drop a collyrium into the eye, to remove a displaced lash or a superficial foreign body, but the best that we can hope to do with regard to the removal of cataract, the doing of an iridectomy, the operations for a squint or deformity of the lids is to impress him with their difficulties sufficiently to induce him to study further before he undertakes them

The fact is that the medical graduate may go out from the only responsible medical schools, the only schools recognized by our medical licensing boards, with but little more knowledge of optics than the best of the self trained opticians and with little more skill in ophthalmic operations than the foreman of a machine shop who takes the foreign bodies out of the eyes of his workmen

How then has ophthalmology been learned by those who wish to prepare themselves for ophthalmic practice? It is learned quite outside of our teaching institutions by those sufficiently interested and fond of study, through the systematic reading of text books, monographs and ophthalmic journals, through the conscientious observation and consideration of such patients as come under their care, through service in private office or public clinic as assistant of some one more advanced in the line, through residence and service in one of our few ophthalmic hospitals, or through visiting and following, more or less closely, similar work in the medical centers of this country or abroad In a very large degree the American ophthalmologist of to-day is self-educated This has its advantages that are appreciable in the individual case, and its fatal disadvantages, as a general method of instruction for a profession on which the community has to depend for important special service

On the side of advantages we may count the enormous pedagogic gain achieved by letting the student pursue exclusively the line of work in which he is interested If his time and interest are all absorbed in dealing with errors of refraction, he will reach an expertness in their diagnosis that the well-rounded practitioner might not attain The same is true with reference to operative ophthalmic surgery or to the refinements of ophthalmoscopic diagnosis By such a method are developed the extreme refinements of skill in particular branches that mark the work of the best ophthalmologists of our time But for the purposes of serving the needs of the community this is largely specialism run to the extreme As a means of securing a general standard of competence it is preposterous

There is a dark side to the working of this system, or lack of system With the absence of any authority to lay out and enforce a systematic course in ophthalmology, or to determine when such course has been successfully pursued, the community is at the mercy of the "get-rich-quick" scheme that leads the man, who is making a failure in some other line of practice, to go to a six weeks' proprietary post-graduate institution and then to return to the scene of his former failure, or more often, to make his appearance in some other part of the country as a full-fledged specialist in diseases of the eye, and probably also of the ear, nose and throat The six weeks, if at all devoted to the effort, furnishes two or three times as many hours as the undergraduate medical school gives to ophthalmology, and will give the would-be-specialist a start which places him at an advantage over the general practitioner of the community in which he settles Only a few shrewd judges of men will be able to pierce the thin cloak of special knowledge that veils the underlying ignorance The six weeks' graduate will get patients suffering from diseases of the eye, and will come to be known as an authority in that branch by a good many people in the region And, although he never opens a new book or learns the name of an ophthalmic journal, his place among ophthalmologists, as well as that of the more conscientious student, is thenceforth established, and the courage that enabled him to strike out into this new unguarded field is abundantly rewarded Elsewhere I have pointed out some shining examples of this kind of self-made specialist the professor of ophthalmology in a western medical school, who had seen three cases of "glioma of the retina beginning after 50 years of age", the ex-president of his state medical society who knew there could be no such thing as mixed astigmatism, because an eye could not be both hyperopic and myopic at the same time, the eminent oculist of a great eastern city who argued that astigmatism might depend on displacement of the retina Such failures of the old plan for ophthalmic education are striking, but not unique

Go up higher Take those who exemplify the best results of this system of ophthalmic education Is not their preparation for the whole of ophthalmic practice likely to be faulty in some direction? Who is there here that, looking over his qualifications for his work is not (as I am) conscious that in some direction he might have been, and should have been, better trained? One for instance, does not feel sure of the results he gets in measuring refraction, another feels himself at a serious disadvantage when he attempts to work out the significance of some paralysis of the ocular muscles, a third would rather avoid a plastic operation on the lids or orbit, and so through the list We can each find a good excuse for our deficiencies—no one told us at the important time the need of special study of this or that particular point Systematic instruction, in pathology or bacteriology, for instance, was not to be had at the time that we could have taken it to the best advantage Later we have been hindered by this or that important matter from making good the deficiency, although fully conscious of it

These defects in training, as well as the imposition of the six weeks' specialist on the innocent public and the guileless general practitioner, are all chargeable to the lack of a recognized systematic course of preparation for entrance on ophthalmic practice One hundred years ago, comparatively few took any course of systematic study before entering the practice of medicine or of law, and schools of dentistry and engineering were quite unknown Time has demonstrated that the well-conducted school, offering systematic courses and enforcing a rounded curriculum, is by far the best means of preparation for entering the practice of a profession Only the indisposition to change, the stolid, unthinking position that what has been is right and must continue, stands in the way of the recognition of this truth with reference to the training for ophthalmology I am convinced from the evidence of the past year that even this attitude no longer offers an insurmountable or very serious obstacle to the proper teaching of ophthalmology

The absence of any curriculum recognized as properly preparing for the practice of ophthalmology leaves both the medical profession and the public unable to decide what should be expected of a candidate for ophthalmic practice, or as to who has conformed to reasonable requirements of preparation for such work This is not only a hardship to those who need the services of an ophthalmologist and an opportunity for the impostor, it also greatly limits the use that would be made of such services, lessens the value of our science and art to the community and prevents us from receiving the proper respect and consideration from the public Our western fruit-growers discovered some years ago that carefully sorting and standardizing the products of their orchards not only paid for the labor expended and gave an increased profit, but also greatly extended the market for that product If people knew what they could get and from whom they could get it, the number ready to act on such exact information would be greater

There can be no doubt that much of the growth of the dental service of the community that has occurred in the last fifty years has been due to the perfectly definite professional status of dentists The optometrists are so conscious of the value of a definite standard of attainment in professional skill that they are spending thousands of dollars in literature, legislative campaigns and newspaper advertising in order to set up the pretence of such a standard regarding one part of ophthalmology, their claim being supported chiefly by ambitious hopes and the fact that thirty-three students are taking the course on optics at Columbia University

It may be asked Is the need of men trained for ophthalmic practice sufficiently great to justify teaching institutions providing the required training?" It will appear on examination that the demand for trained ophthalmologists is greater than has yet been recognized in any formal estimate of the situation From month to month I receive letters from people in towns of considerable size inquiring where they can get the services of a reliable ophthalmic specialist Some of these letters are from patients, or members of their families, some are from well-known ophthalmologists with patients still in need of attention going to the places indicated I probably have as good opportunity for knowing the ophthalmologists of a large part of this country as any one Yet there are regions of hundreds of miles of fairly populated states in which no such services are to be obtained

If trained ophthalmologists were sufficiently numerous and properly distributed to be available for all the services they could render to the community, I believe that one to every 10,000 inhabitants would find plenty of work and fair remuneration Some of you have seen as many as 10,000 patients in private practice, but not all of you, not the majority, that would be a new patient—not the return of an old one—every day for thirty years Practically all members of the community could be mutually benefited at some time by the services of an expert ophthalmologist, and many require a great deal of such service Suppose that such 10,000 patients average 25 cents a year, $5 00 in twenty years, as their contribution to the ophthalmologist, the sum would be much above the average income of members of the medical profession One ophthalmologist to 10,000 inhabitants would mean about 10 000 physicians trained in ophthalmology needed in the United States, and when we remember that of the men having such training we cannot expect an average of over twenty-five years of professional service, it means that there is a need of 400 men trained for ophthalmic practice each year That the present opportunities for residence in ophthalmic hospitals and as assistants in eye-clinics are inadequate to furnish any such number of trained ophthalmologists is evident

For the medical schools favorably situated with adequate facilities, there is no line of work that they can take up of more service to the community or of more advantage to themselves than this of systematizing and standardizing the training of ophthalmic practice

What ground should this training cover? What facilities for study should it offer and utilize? How should the curriculum be arranged?

The course of training for a profession is not to be elaborated in a few hours of thought and compressed into a rounded paragraph, or thrown together in the course of a single discussion But above all things it is desirable that we should arrive at some definite practical suggestions and, in order to give definiteness to this discussion this scheme is outlined

The work done before obtaining the degree of doctor of medicine should include the acquirement of a definite knowledge of the special anatomy and physiology of the eye, and of the general anatomy and physiology of all tissues entering into the composition of the eyeball or accessory parts Only certain special problems in anatomy and physiology, like those regarding the filtration-space and the maintenance of intra ocular tension, should be left for study in this special course General pathology should be mastered in the undergraduate medical course, the processes of inflammation and degeneration the characteristics and tendencies of tumors should all be familiar to every medical graduate Moreover such an acquaintance with the ophthalmoscope, the trial lenses and other standard methods of ophthalmic diagnosis, as has been mentioned above, should be possessed by all graduates in medicine, and graduation in medicine after a standard four years' course should be made a preliminary to the work to be outlined Furthermore, the special student of ophthalmology should have certain preliminary studies not required of all graduates of medicine Both in justice to himself and to the community he should have some acquaintance with physical optics, algebra and plane trigonometry

With such a foundation the special curriculum in ophthalmology may be undertaken with profit The back-bone of the course should be one year of clinical work in an eye-clinic This must be chiefly an out-patient service, but will be better to include a certain number of hospital patients Perhaps an equivalent may be found in serving as an assistant to an ophthalmologist in full practice, the longer hours devoted to the work tending to make up for deficiencies in other directions With the clinical work should go the careful study of every portion of one of the larger complete treatises on ophthalmology and the reading up of particular subjects in other text-books, monographs or journals in connection with cases encountered in clinical work In addition, there should be work on pathologic specimens, both gross and microscopic, including the examination of smears and cultures, drill in the more common important operations on the eyes of the lower animals, special instruction regarding the eye symptoms of diseases of the central nervous system and important general diseases During the whole course the student should be assisted by demonstrations, and his work supervised by means of quizzes and clinical conferences Finally there should be one or more thorough examinations, written, oral and practical, to test the knowledge the student has acquired and his ability to focus it on the question or case under consideration To those successfully completing such a course a special degree should be given

Such a scheme or schedule raises many important questions First, the time to be devoted to it. A great deal could be said in favor of two or three years devoted to ophthalmology before recognizing the candidate as competent. But there is danger of making the requirements so rigid that not enough will meet them to supply the needs of the community and to establish such a course of study as the only proper entrance to ophthalmic practice To establish a supervised course of one year is a radical departure from the practice of the past When it has been thoroughly developed what this will do for the student, improvement in the curriculum may properly be considered With reference to the preliminary requirements, it would be easy to argue for one year's work as intern in a general hospital But the process of prolonging student life before entering on actual professional work has been carried about as far as can wisely be done, in view of the limitations imposed by human nature and the need of turning the youthful energy into channels into which it is to flow throughout active life, at the earliest date compatible with fair preparation of the average individual The need is not now to lengthen the period of study, but to use it to better advantage more economically, more efficiently, to bring into play more immediately and effectively the life motive, a realization that the individual has actually entered on the labor that is to determine his permanent place in society and to bring this motive into play at the earliest possible moment

The requirements regarding mathematics and physical optics might be a subject for discussion But it would seem that when so large a part of the work of the ophthalmologist consists of the measurement of the optical conditions of the eye and the correction of refractive errors, this kind of preparation ought to be insisted on, although many who graduate from standard medical schools may not be ready to meet the requirement To make up such a deficiency will usually not take many weeks, and it furnishes an excellent exercise for one who is entering on the practical study of physiologic optics

Nothing has been said about the part of the course devoted to the refraction of the eye In clinical work, in reading, in demonstrations and in quizzing, this should receive the full share of attention It is so different from most of the undergraduate medical course that the preparation for ophthalmic practice may well include special emphasis on it, without conceding that it constitutes the whole, or almost the whole, of the practice of ophthalmology

Briefly to recapitulate Ophthalmology is a field broad enough to claim all the time and energy that can be given to it by any trained mind Proper preparation for ophthalmic practice requires as long systematic and thorough training as preparation for any other profession Such professional training should be systematic and carried on by responsible institutions, working up to a recognized standard

The supervising and standardizing of the course on ophthalmology will result in the more complete and rounded training of competent ophthalmologists and in the elimination of the incompetents who seek a short cut to professional standing and financial success It will greatly improve and extend the ophthalmic service of the community

The systematic supervised course that it is now practicable to establish should be based on completion of the ordinary medical curriculum and acquaintance with the necessary mathematics and physical optics and should include one year of clinical work in ophthalmology, a careful systematic course of reading, with systematic instruction in special diagnostic methods, ocular pathology and therapeutics, and the measurement and correction of errors of ocular refraction

Metropolitan Building

ABSTRACT OF DISCUSSION

DR SAMUEL D RISLEY, Philadelphia I agree with Dr Jackson, at present undergraduate teaching is inadequate as an equipment for the practice of ophthalmology as a specialty The same may be said with less emphasis it is true for any branch of medical science The young graduate physician who has failed to secure an internship in some general hospital for at least one year or work under the tutelage of a large clinic is not a safe practitioner of any branch of medicine or surgery Without such opportunity his experience is gained at the expense of the community in which he settles This is especially true of ophthalmology and otology for which the requirements of the curriculum are relatively meager In ophthalmology moreover a preliminary training in mathematics more thorough than is usually required in the average B A degree is necessary for a definite comprehension of many of the optical problems which present themselves in the dioptric system of the eye

I have passed most of my professional life in the study and practice of ocular affections which found no mention in my university course of instruction One of two courses must be adopted if the evils pointed out by Dr Jackson are to be remedied that is to say if the members of the community are to be spared the danger of submitting themselves to the care of incompetent ophthalmic surgeons (1) the hours devoted to ophthalmic study in the medical colleges must be largely extended and supplemented by largely increased facilities for clinical opportunity, or (2) [illegible] almost fish like or cadaveric stare, very similar to that noticed in extreme alcoholic intoxication"

I have never looked for this symptom, therefore I cannot speak from experience

Dinsmore of Alabama, in a personal letter, expressed great faith in it, while Ashford of Porto Rico and Dock[12] of St Louis do not believe it diagnostic

In presenting this subject I wish to call attention to other eye disorders associated with, if not caused by hookworm infection They are cataracts in the young and spontaneous hemorrhage from the conjunctiva

Soon after hookworm disease was discovered in Georgia and the South, about 1901, when there was so much talk, in earnest and jest, that the germ of laziness had been found, my father, Dr A W Calhoun, had two young people from Florida, affected terribly with anemia, dropsy, more or less stunted in mind and body, who had cortical cataracts In one case he performed a discission, and in the other an extraction after iridectomy, with good results I suggested that we make an examination of the stools for the detection of larvæ of hookworms as the patients looked to be fit subjects, and, to our astonishment, their stools were found to be loaded with the eggs He reported these, and made mention of others under the title of "Association of Hookworm Disease with Cataract," before the Georgia State Medical Society[13]

Since that time I have been watching for these cases, and not until last year did I find them Two other cases of cataracts in young patients associated with hookworm disease, were reported at the 1910 meeting of the Georgia State Medical Association and later published,[14] and to make this article more complete, I herewith attach the cases from that report

Case 1 —*History*—L M R, aged 20, an ignorant country lad from the back woods near Ellijay, Ga, was referred to me by Dr J T Tankersly The boy was so ignorant or frightened at the time of my office examination that I could obtain very little history from him, except that the right eye had gradually gone blind in the past three months, formerly the patient thought, he had as good vision as any one Dr Tankersly confirmed his statements, having known the boy and his family, who belonged to that class known to us as poor white trash" Heredity played no part in this case, his family was in fairly good health, yet probably the home was a hot bed for hookworm This patient's health had never been good, he evidently had suffered from the infection of hookworm since he had the ground itch," years ago He had gone to school occasionally until his sight began to fail and he spent that year 'around the house" because "short ness of breath" kept him from working His appearance was so typical of hookworm disease that it was of no credit to the microscope to find the eggs later He was small in stature, about 4 feet 6 inches, very pale, having a bloated face, an anxious expression, and the tissues relaxed, and he gave the appearance of not being more than 12 or 15 years old, and the mind of one not that age

Examination—The conjunctiva was bloodless, the pupils reacted to light, and the projection was good After dilating the pupils, I found a fully developed cataract in the left eye, the right not quite as mature I sent the patient to the hospital to be operated on the next day Except for a hemic murmur he was found to be normal by a physical examination The urinalysis was normal. Blood showed hemoglobin 20 per cent , red cells 2,000,000 The feces were loaded with eggs of uncinaria

Operation and Other Treatment—Under cocain anesthesia a light discission of the left cataract was performed and in two days I found absolutely no reaction either of the globe o lens Four days later I attempted another discission, lacerating the capsule well and stirring up some of the cortical substance of the lens Much to my surprise, I still found no reaction to the eye or swelling of the lens Then I deemed it best to give the patient the usual preparation and treatment of calomel and thymol for such parasites, and saving all stools after the administration of thymol, 750 worms were found Within a few days after the treatment the lens commenced to swell, although it took six discissions in each eye to establish an opening through the dense capsule which remained clear and through which the fundus could be seen After four months of careful nursing and treatment at the Wesley Memorial Hospital, glasses were adjusted and with his left eye he could see 20/70 with a + 11 50 S The result in his right eye was not so good at that time, as there was an unabsorbed capsule A very good view of the left fundus was obtained and I found marked circulatory disturbances in the retina The nerve head was swollen two or three diopters, the veins markedly dilated and throughout the retina there were a few small flame like hemorrhages These retinal disturbances were undoubtedly the cause of the poor sight after the operation, as the pupil was large and black and the media clear

Course—In a letter six months later the patient tells me that his sight is still improving, meaning that, as his anemia vanishes the retinal congestion diminishes and sight is restored Unfortunately no accurate records of weight or height were taken but he must have grown 2 inches and gained 30 pounds from July 4 to November 26 The hemic murmur disappeared, his mind grew brighter and he was full of energy when leaving although the thought of home and the approaching of Christmas time acted somewhat as a stimulus

September 1911, the patient returned for xamination He had gained in weight, and his color was very much improved With the proper glass, vision was improved to 20/20 in the left eye The engorged and tortuous veins had been reduced to normal There was no swelling of the nerve or retina, and there existed the merest trace of any retinal hemorrhage There was still some capsule in the right eye and after a capsulotomy, he had 20/70 vision No fundus changes were observed in this eye

Case 2 —This case is not so interesting, but I am convinced that the anemia and toxemia produced by the hookworm caused the cataracts

History—L B C, aged 26, of Newnan, had been blind in the right eye for two years, in the left for ten years, whereas up to that time when out hunting, as he expressed it, he could kill a rabbit as far off as any one" His father, an old man, had cataracts removed some years ago, a record of which I have He gives a history of having had the "ground-itch," for which he was given some sort of treatment years ago and of having been thin and puny when a boy This treatment possibly was the thymol treatment for hookworm, although I have been unable to learn anything definite from his family on this subject This patient was well developed (another fact which makes me believe that thymol has at some time been administered), but he had the appearance of a boy 17 to 20 years old, and the intellect of one much younger, although he was thoroughly ignorant and had never been to school

Examination—The right eye showed an immature cataract of the cortical variety, as to vision, patient could count fingers at a distance of 4 feet Left mature cataract Projection good in each eye Blood normal Urine normal Feces many eggs of uncinaria

First Operation—On account of no existing anemia, I decided to operate before giving him the thymol in order to save time, and on September 11 the lens was extracted *in toto* from the left eye, after the Graefe method Healing was uneventful and on the 27th the treatment for the hookworm was given and about 200 parasites were found Later a glass was prescribed for his left eye and only fair vision was obtained, viz, 20/100, explained only by the fact that the eye was amblyopic ex anopsia for ten years Only a preliminary iridectomy was performed in the right eye and I anticipate a much better result after extraction.

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[12] Dock and Bass Hookworm Disease St Louis 1910

[13] Calhoun A W Ophth Rec 1004 xii No 7

[14] Calhoun F P Ophthalmology, September 1011 xxviii, No 9 Tr Oph xxviii No 11

Second Operation—April 15, 1911, the patient returned by request for the second operation The right cataract was extracted after a preliminary iridectomy, and the result was fair, namely 20/200 vision The fundus appeared normal The fact that the vision after the operation was approximately the same in each eye makes me now doubt my former opinion, that the left eye was amblyopic ex anopsia The vision in the left eye, nine months after the operation, was 20/50, and as the fundus still shows no alteration, I am rather inclined to believe that a toxic neuritis existed then which passed away after instituting treatment

CASE 3—*History*—P B aged 22, from southern Georgia, was referred to me by Dr A G Fort, field agent of the Hookworm Commission in Georgia I am indebted to him for the case, and the family history of the patient The family consists of a poorly nourished, hump back father, a mother and nine children, who up to a short time ago lived in the backwoods of southern Georgia, running a small farm All the children when old enough worked in the field or helped around the house. They went barefooted most of the year There were no out houses or privies on the place Seven members of the family, including the father, were examined by Dr Fort, or his assistants, and found to be infected with hookworm This patient had been sickly all his life and, to use his expressions, he had 'heart dropsy" up to three years ago when he had taken some medicine and since that time he had "picked up right sharp" He had gone to school to some extent, until his sight began to fail ten years ago Questioned as to his sight before that time, he said that he knew it was good Sight first failed in the left eye, which rapidly went blind and five months later the right began to be slightly affected Since March, 1911, the boy has been a pauper on his county, although he is very energetic and exceptionally bright for a hookworm subject or a backwoodsman. He is quite thin with drawn features

Examination—This was negative Blood showed hemoglobin 75 per cent, white and red cells normal, urine normal, feces contained no hookworm eggs (the patient had received treatment) Eye examination With the right eye the patient could count fingers at a distance of 3 feet, the pupil was dilated, and sector shaped opacities were seen at periphery of lens, with dense changes in the posterior cortex Left eye had light perception only, which was good Lens examination was made after a mydriatic, and there was a chalky white cataract with evidences of some cortical absorption The capsule was thickened near the anterior pole

Operations—A very light discission of the right lens was done at the same time and a thorough stirring up of the small amount of the soft cortex in the left eye A week later a second discission was made in the right lens, as little reaction had developed The left eye was doing nicely

Course—In all six discissions have been performed on the right eye and three on the left, and the patient is still confined to the hospital at the time of this writing eight weeks after the first operation The right cataract is absorbing slowly, while the left has almost entirely cleared and with the correct glass his vision is 20/70 The fundus appears normal

My fourth case, a most unusual one, was that of spontaneous hemorrhage from the conjunctiva of one eye

CASE 4—*History*—In the spring of 1911 a well developed girl, aged 11, was brought to me from Florida on account of bad sight in the right eye but principally because there were periodic attacks of spontaneous hemorrhages from that eye I had some correspondence some weeks previously with the child s mother, who wrote that frequently since December, 1910, she had observed blood on the right side of the girl s pillow slip in the morning and occasionally some dried blood on the eye lashes I advised her to bring her daughter to Atlanta for examination.

Examination—March 13 1911, I found vision, right hand movement only There were old nebulous corneal scars from attacks of "sore eyes two years previously Vision left 20/20 The mother stated that the child s health was not good and she "bloated" and her feet swelled The menstrual flow was not yet established the child was quite stupid The pupils were dilated for retinoscopy The right was unimproved, retinoscopy + 4 S left 20/20 with + 1 S Fundus right papilla very much swollen outline very indistinct vein tortuous and dilated no hemorrhages Left negative

Treatment—As soon as I saw the right fundus I recalled the picture of hookworm cataract (Case 1) and suggested a laboratory examination of stools This was made with a report of many eggs" Appropriate treatment was suggested and carried out by the family physician at home + 75 S were prescribed for constant wear, and the patient immediately returned to Florida I observed no hemorrhages from the eye at this visit

Course—Within a few days after leaving the mother wrote that the patient had had a severe hemorrhage from the right eye I suggested that she make another visit to Atlanta as soon as possible, and come with the understanding of remaining as long as necessary On April 24 she returned with a letter from her physician, who wrote that calomel salts and thymol had been given, and a quantity of worms had been expelled A second stool examination was made in Atlanta Very few eggs were found and the thymol treatment was repeated The eyes were again examined under a mydriatic The vision of the right eye was the same namely hand movement only The vessel was not so large and the papilla not so swollen vision on the left with glasses 20/20

The mother stated that no hemorrhage had been observed in four days I gave her instructions to call me day or night when hemorrhages occurred Three days later I received a telephone message early one morning before office hours that there was some slight hemorrhage The patient was brought to my office without having her face washed and I found dried blood on the lashes The conjunctiva of the globe and of lower lid was normal, but on inverting the upper lid in the retrotarsal fold I observed some dilated veins This evidently was the one point from which all hemorrhages came and the tears forming washed the blood from the lashes The patient was given an iron tonic, a weak epinephrin eye wash and observed for several days afterward A letter from the mother October 1911 informed me that there has been no subsequent hemorrhage The sight in the right eye has been much improved and she thinks that her general condition is better

Lutz's cases of chemosis of the bulbopalpebral fold are the nearest approach to this phenomenon that I can find

Having the facts before us that eye changes do occur in individuals who are infected with hookworm disease, and these changes have been accurately and minutely described by men of prominence, it might be of interest to those who are not familiar with the clinical picture of this disease, for me to mention briefly what hookworm is, the pathology the mode of infection, the symptoms the treatment, etc, and then draw the conclusion

Hookworm disease is due to certain species of hookworm which live as parasites in the small intestine It occurs especially in warm countries or in temperate latitudes where the climate in summer or other conditions (as warm mines), offer favorable conditions (Dock)

For many centuries this disease has been known to occur in the Old World and Stiles quotes Joseph Pitt (1808) as the earliest American author to mention it Of the many later workers in this disease, Smith and Schaeffer of Texas Smith and [illegible] of Georgia and Stiles, of the [illegible] d [illegible] pioneers in the d [illegible] South

Hookworm affects those who have intimate relations to the soil and the poor country people of the South without the proper knowledge of cleanliness or hygienic surroundings are the ones most commonly and seriously affected

The mode of infection may be by any one of many ways, that is, by food, water, or through the skin Dock mentions that skin infection is practically the only source of the disease

The worms reaching the adult life, or the stage of reproduction in the small intestine of man, lay eggs which pass out with the feces The eggs do not hatch in the intestines on account of lack of oxygen and other reasons For that reason one cannot infect oneself These larvæ are not infectious until they are 4 or 5 days old, then they may penetrate the skin, reaching the venous circulation, going to the heart, thence to the lungs and bronchi, and are carried to the mouth by the normal outward current of the bronchial mucous membrane and by coughing, and are finally swallowed

When the larvæ penetrate the skin a dermatitis is produced, and in bare-footed children this dermatitis produces a common early symptom known as "ground-itch"

The symptomatology of hookworm disease is most variable, in fact, there are a great many cases which present no symptoms that can be recognized as variations beyond normal Anemia, of a most pernicious type, with variations in hemoglobin estimate, as low as 8 per cent, is the predominating symptom, along with this severe anemia albuminuria dropsy, weakness, pallor, incapacity for any work, shortness of breath, etc Death may intervene, as the patient's resistance is so lowered that he quickly succumbs to any intercurrent disease In another type, not so severe, the hemoglobin is 50 to 70 per cent, lowered vitality and energy, dizziness, symptoms of dyspepsia etc Children with this type do not develop in mind and body The individual may be 20 to 25 years of age, whereas he is no larger than a child 10 to 12 years of age

"The diagnosis is to suspect its presence" (Manson) The microscope will find the eggs in the stools if they are present The treatment consists of the administration of calomel or oil as a purge, followed later by a saline, and then the anthelmintic (thymol) in doses to 60 grains, finally another saline to cleanse the bowels of the dead worms

Toxic amblyopia from thymol has been observed by Farrel, of the North Carolina Hookworm Commission He could not tell me whether it was temporary or permanent It had occurred twice in 28,000 cases and Nieden mentions amblyopia, temporary or permanent, from ½ to 2½ drams of extract of filicis maris (male-fern)

That there is a toxin produced by hookworm disease most students of the disease agree What part is played in the causation of the symptoms, that is, the destruction of the blood or the eosinophilia, I dare not venture an opinion I might say, however, that there are cases of hookworm infection with a severe anemia in which few worms are found This alone would strongly point to a toxic action in the blood It is Ashford's belief that a "toxin" exists

Does hookworm disease cause eye-changes or are they merely associations? I firmly believe in the affirmative and it is my purpose to prove the assertion

Retinal hemorrhages, enlarged veins and a neuritis strongly point to a toxemia, producing a degeneration in the fundus Nieden thinks that the great loss of blood through the blood-sucking worms is a doubtful cause, in cancerous cachexia, there is often produced a fatty degeneration of the retinal fibers as well as circulatory disturbances of the same These he described to be the toxins, produced by the tumor

Fischer[3] is of the opinion that the eye changes are due to toxins

As to certain circulatory disturbances of the retina, and even the case which I report of spontaneous conjunctival hemorrhage, I do not believe that anyone would doubt that hookworm infection produces them through the medium of a toxemia, but whether the disease would produce cataracts there has been extreme doubt, regardless of my decided views

In the consideration of the etiology of hookworm cataracts, I would call attention to certain well-known anatomic and pathologic facts

1 The lens receives its nourishment from its surrounding liquids—the vitreous and mainly the aqueous —by diffusion through the lens capsule That metabolism in the lens is slow is proved by the fact that lens opacities often remain stationary for a long time

2 The lens proper is protected from the aqueous by its capsular epithelium Hence any disturbances to this capsule will cause cloudiness in the lens sooner or later

3 An alteration in the composition of the aqueous, e g poisonous substances or toxins, exerts changes on the epithelium which in turn cause a cloudiness in the lens, or more directly as a result of diosmosis, through the intact lens capsule these poisons produce opacities

Such an alteration has long been considered as a possible cause for senile cataract, due to some senile change in the ciliary processes which secrete the aqueous (Peters), or to certain disturbances in the general metabolism as occurring in chronic nephritis

Additional evidence that toxins do produce changes in the capsular epithelium is that rare form of anterior polar cataract due to deep non-perforating ulcers of the cornea

4 The foregoing changes are presented to us in the form of complicated cataracts, occurring secondary to changes of the inner coats, or even a more beautiful example is the naphthalinic cataract The experiment was first performed on rabbits by Bouchard, when naphthalin was administered there developed a retinitis with vitreous opacities, and a cataract subsequently formed In man this phenomenon has been seen to occur when a naphthol ointment was used for skin diseases

5 Other systemic diseases as cholera and pellagra similar to uncinariasis in that they produce toxins and to an extent an anemia, cause cataracts

In many respects hookworm disease is similar to pellagra It is a systemic disease, the cause of which is still obscure, this disease produces toxins, and that there are eye complications, notably cataracts, caused from these circulating poisons, is an established fact known for many years

Stewart Roberts, of Atlanta, in the latest works on pellagra, devotes considerable space to eye complications As to the formation of cataracts he quotes Fabricious and Procopui, who show that cataracts are of unusual frequency among pellagrins, even pellagrous children develop them in the form of milky cataracts Welton, in reporting his investigation in Peoria, refers to the frequency of early-forming cataracts, and Tucker found cataracts in three out of forty-five cases, while Whaley, of South Carolina, found cataracts in six out of thirty-five pellagrins Roberts attributes the cataract formation to the metabolic degeneracy of the entire system, the altered and lowered nutrition of the lens, as determined by the presence of the pellagra poisons

Why, then, not cataracts in hookworm disease?

Frenkel,[16] of Toulouse, in his study of the pathogeny of the lens, states that different body toxins produce changes in the ciliary zone, which also produce changes in the lens

In very recent letters from Lippitt, of San Juan, he gives me histories of two cases of cataract in young hookworm subjects, one a negro, aged 20, with a well-advanced cataract in one eye and one beginning in the other, the other a 13-year-old girl with a commencing cataract in both eyes She presented no other symptom of anemia It is Lippitt's opinion that the production of cataract in early life proves the existence of a toxemia in hookworm disease

It is interesting in this connection to know that while the negro may be infected with hookworm, uncinariasis does not produce anemia Such is the experience of Lippitt and Ashford in Porto Rico I have never seen a negro hookworm patient, and they are extremely rare

Finally, having in mind the anatomic situation of the lens, its nutritive dependence on the ciliary zone and its neighboring fluids, and an alteration in these structures, whether from an anemia or an accumulation of toxins (or both), I believe them sufficient to produce cataractous changes

If hookworm disease does produce cataracts, then we have a new cause, and one which can be prevented

I am indebted to the gentlemen who have aided me with their courteous and interesting letters, especially I wish to thank Drs Fort and Roberts of Atlanta and Dr Ablemann of Washington, D C, for their many suggestions and their help in the preparation of this paper

833 Candler Building

ABSTRACT OF DISCUSSION

DR. HOWARD F HANSELL, Philadelphia The only case I ever saw was that alluded to by Dr Calhoun, published in the *Transactions of the American Ophthalmological Society*, 1901 The patient was an Italian boy, aged 16, who had been brought into the medical wards of the Philadelphia General Hospital from an immigrant ship which had sailed from Mediterranean ports His case was diagnosed as pernicious anemia, and it was only after a thorough examination of all the bodily organs and secretions that the cause of the anemia was suspected The ocular findings were those described by Dr Calhoun—moderate double optic neuritis edema of the adjacent retinas and numerous hemorrhages scattered throughout the retinas The vision was for a time seriously compromised After the discovery of the intestinal parasite suitable remedies were administered, and the patient recovered his vision and his health I have no doubt that a considerable proportion of cases of anemia classified as 'pernicious" owe their origin to the *Ankylostoma duodenale* A study of this affection and a wide-spread dissemination of the knowledge gained has resulted and will continue to result in the saving of many lives I fully agree that hookworm disease may be the cause of cataract We know in part the etiology of cataract, but we do not know it in full The presentation of these cases carefully studied seems to point to a new factor in the etiology We can hardly accept the conclusion that anemia alone is responsible, for we have but to remember the many cases of anemias that we have seen who have clear lenses The excessively high degree of anemia associated with hookworm disease or the toxins of the worm preferably the latter, certainly point to the justness of Dr Calhoun's conclusions

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THE DANGERS TO AND THE REQUIREMENTS OF THE EYES OF THE NATIONAL MARKSMAN

JOHN A. DONOVAN, M.D

BUTTE, MONT

The time has come when the efficiency of our army and navy depends on our marksmanship Since Congress authorized the sale of small arms to any citizen affiliated with the National Rifle Association everywhere an increasing interest is taken in this line of sport Even our high schools are producing many expert marksmen

In 1903, of 18,325 men firing the prescribed course in our army, but 907 qualified while in 1909, of the 27,121 men trying, 2 065 qualified as experts, 6 026 as sharpshooters and 2,945 as marksmen, or a total of 11 036 compared with the 907 six years previously Of the 10,000 men firing in the navy in 1906, only thirty-six qualified, whereas in 1909, 999 qualified The Marine Corps report shows 107 having qualified in 1906 At the close of 1910, 3,878 had qualified, of which 555 are experts[1]

Has the oculist kept pace with the increasing demands for his assistance with this work? The efficiency of our present military rifle is limited only by the ability of the man behind the gun and the limitation of his vision is about the only restriction so far not overcome The sporting magazines, I fear, are in the lead in the discussions of the requirements of the marksman's eyes and the suggestion of remedies

At present, the official bull's-eye at both 200 and 300 yards is 8 inches in diameter, the shooter standing for the former and kneeling or sitting for the latter All other ranges are shot from the prone position i e, the shooter lying flat on the ground, head toward the target Twenty inches is the size of bull's eye at 500 and 600 yards, and for the expert who shoots the extreme ranges of 800 to 1 000 yards, 36-inch bull's eye is used

Using Snellen's standard at an angle of 1′ we get a little more than 1 inch for each 100 yards Thus the 8-inch at 200 = an angle of 4′, the same at 300 yards = 2 66′, 20-inch at 500 = 4′ at 600 = 3 33′, the 36-inch bull at 800 = 4 5′, at 1,000 yards it is 3 6′ From this it is easy to calculate the visual requirements from Snellen's test-letters that will enable a man to see a bull's-eye distinctly at 1 000 yards, providing atmospheric conditions are correct But as a bull's-eye is round — therefore a spot — and the distinctness of a spot depends rather on its illumination than its size the color contrast light and atmosphere must be considered in the test Reflections from the white ground, sand or water bright sky sun in eyes, etc, may make the target invisible How to overcome these obstacles is the oculist's problem The shooter must elevate his sight should the target suddenly become clouded and vice versa, should it become bright A glass that would maintain a more uniform light would largely obviate this and produce more accurate result

The expert marksman today must be a scientist understand the laws of internal and external ballistics, the effects of wind, temperature light mirage, barometer, hydrometer on the elevation and deflection of each shot fired In addition to this according to the visual law of 1′ angle an error of 10 inches in the 1,000 yards is to be allo[illegible] for [illegible] 600 yard distance a 6 foot man we [illegible] of 17 [illegible]

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15 Frenkel (Ann de l'oculistique February and March 1910)

1. Official [illegible]

times Snellen's requirements At this standard, if it were not for the obstruction of the atmosphere, a man could be discerned at 1,375 yards[2]

Our military rifle, new Springfield model, 1903, using 1906 ammunition, 150-gr bullet, velocity, 2,700 foot-seconds, is very accurate and effective at any of these ranges In fact, is sighted up to 2,800 yards The sights are 22 1254 inches apart and a movement of the rear sight 1-150 inch = 1' sight radius, which moves the bullet 1 inch on target for each 100 yards Though 1-150 inch in movement is necessary for extreme accuracy, the unaided eye can discern but 1-100 inch[3]

Our patients ask for glasses to see rear sight, front sight and target all at one time, and usually attribute the defect in shooting to old age What can be done?

The rear sight when held close is 9¼ inches from the eye when firing, requiring 1 33 D S accommodation The front sight 32 inches requires but 1 25 D S accommodation, while the target requires none if the eye is emmetropic One theory, as taught by Surgeon-General Longmore C B,[4] is that an alteration of accommodation takes place in rapid succession in shooting Bouchart[5] gives credit to Sulzer for solving the problem by the theory of the continuation of retinal impressions (6/100 of a second) gained by seeing each sight and the target separately To add to this, he shows that the time necessary to send impressions of objects to the brain is augmented with the distance This theory has much in its favor and seems to have gained many adherents among us The length of a retinal impression depends on the illumination and size of the object On the other hand, Greener, a British expert,[6] says "The sights both being out of focus, will be to some extent blurred and must therefore be of shape and color best adapted to impress the eye directed on the target" Dr W G Hudson, one of the world's best experts,[7] says

> If the eye is focused on the bull s eye the rear sight will be blurred very much and perhaps the front sight may blur a trifle, but not sufficient to make it indistinct Therefore, all that is necessary is to be certain that we see top of front sight through center of aperture and after that we may disregard rear sight

Our War Department, in the books of instructions,[8] [9] recognizes the same facts Their advice is to look at what one is shooting and not think of the sights I have tested this theory by suspending my accommodation with homatropin, being then able to make the same scores With accommodation fully paralyzed, distant vision was reduced to 20/70, yet through the rear aperature sight on a Springfield I could read 20/15 Wearing correction for the hyperopia, the rear sight was a complete blur, the front sight indistinct, yet in five scores at 200 yards my results equaled my average Lieut T Whelen U S A,[10] says

> Some men have difficulty in seeing the bull's eye distinctly when aiming It may appear gray and blurred In this case center the bull s eye in the peepsight instead of the front sight, bringing the front sight to its correct position relative to the bull s eye

Experience has shown that those who shoot with both eyes open have much less strain on the eyes and can maintain a clear bull's eye which otherwise would become blurred

The best argument in favor of the theory of the necessity of accommodation in focusing the sights instead of the target is made in an excellent article by Maj Henry A Shaw, Surgeon United States Army, and Lieut Col J M Banister, Department of Surgeon-General, United States Army[11] They quote several noted authorities, and with ten sharp shooters made many careful tests, firing five shots each with naked eye, five each with vision blurred by + lenses to make it 20/10, and five each vision blurred to 20/70 The results showed equally good From this, they prove that an accurate focus of the sights only is necessary They do not take into account that once the expert finds the bull's-eye and is holding good, he can make each successive shot come near the other as long as he retains his fixed position Nor do they consider that the bull's eye is a spot, thus its distinctness depends on its illumination, and the law applicable to Snellen's test-type would not bear the exact relation Above I have shown that the bull's-eye has sufficient size to be easily discernible by a man with at least one third normal vision In fact, all that such a test really did accomplish was equivalent to shooting at a poorly colored target or in a bad light, which, as a matter of choice, no man would make If accommodation is necessary, why do we find it so much less tiresome and the bull's eye often more distinct when both eyes are kept open? If we are using accommodation, then we must suspend our convergence Why does a sportsman choose the aperture and gold bead for use in the woods, if the main part of his vision is to be centered on his sights? On seeing his game, he glances through the rear sight simply to bring it into position, then at the front sight to know the general position of his rifle, and then, watching the game until he notices that the sights come perfectly into his line of vision, he fires The first two movements, made to bring the gun into line, become unnecessary with long practice The only requirement is to have sights distinct enough to produce a definite retinal impression once they come into perfect alignment with the object The snap shooter becomes unconscious of his sights

The full correction for distance is therefore the glass to be prescribed For the presbyope, the bifocal is the ideal combination For defective vision, the rear sight in all cases should be an aperture close to the eye, which is practically the same and gives the same result as the stenopaic disk in our trial case It should be small enough to admit only the rays the eye can focus, but must be large enough to admit sufficient light to see the object clearly, thus, an extra size is necessary for use in a poor light Our present military sight is unnecessarily far from the eye, making the very admirable aperture sight in it often impracticable A new receiver sight approved by some expert riflemen, is now on the market, and it is hoped the War Department will at least permit its substitution, as it will be of great assistance to all with any visual defects The front sight for these persons should be sufficiently large that its top may be plainly seen when the eye is focused on the bull's eye The improved scores made with the new sights of this class on the Ross rifle (Canadian) prove their advantages The use of the ophthalmoscope with suspended accommodation will fully explain the correctness of these statements

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[2] British Optical Manual 1885
[3] Suggestions to Military Riflemen p 80
[4] Optical Handbook of Instructions British Army Ed 3 p 14
[5] Wood and Andrews Practical Medical Series 1906 ii 29
[6] Sharp Shooting for Sport and War Ed 2 p 172
[7] Modern Rifle Shooting from American Standpoint p 67
[8] Small Arms Firing Manual 1909 p 10
[9] Manual for Privates of Infantry 1909 p 20
[10] Suggestions to Military Riflemen, p 67
[11] Circular No 5 War Department, Jan 25 1908.

In putting on the correcting lens, whenever possible, the final test, if lenses are at all strong, should be made with the trial frame on and properly adjusted while in firing position. Nearly all shooters look either through the upper edge or over the ordinary glasses, thus making them useless or worse, by producing diplopia. The center of the lens to be used for shooting only, should be decentered up about 1 or 2 cm. and at least 1 cm. in. The lenses must set up very high, toric shape and if possible away from the brow, to prevent blur from sweating. The navy team for match work had the bottoms cut off the lenses to allow the bolt to be withdrawn without hitting the glass.

To protect the eyes from the glare and maintain a more uniform light, a light amber has been adopted by sportsmen. Experience has been their guide.[12] Parsons,[13] before this Section two years ago, suggested that we were not so well informed as we should be on the effects of light and colored lenses. Judging from the many conflicting reports on the advantages of different-colored lenses, we may still learn much. If didymium glass, which he suggests, being colorless, has proved its efficiency, it would have every advantage. Amber, euphos (greenish-yellow imported glass), etc., all absorb much light. The sportsman is awaiting our conclusions. Something is necessary, more especially, for the indoor range work, in which electric lighting is used. Artificial light is prescribed. The 10-spot is the inner ½-inch circle in a 1½-inch bull's-eye at 25 yards. For occasional shooting, this is not annoying, if one keeps at it long, the eyes give out. I have tried several tints of amber, euphos and amethyst lenses and find that all absorb considerable of the light, but the eyes in time fatigue so the black spot becomes gray and may entirely disappear. In careful shooting, the eye is kept on the bull's-eye, steady pressure being made on the trigger until the front sight appears exactly under the center of the lower edge. My observation in the team which for two years held the championship in this indoor shooting was that long before the season closed, every man complained of exhausted vision, and this year, owing to the severe eye strain experienced, four of the five were unwilling to enter another long contest.

A mark made with a pencil is in the proportion of 80 per cent. to one made with ordinary ink, therefore, a standard jet-black should be adopted. A mercury vapor lamp with glass, not quartz, the irritating rays being absorbed by the glass, is possibly the proper illumination, and I have recommended it to the local team, but so far we have not used it.

The use of large glasses, instead of being discouraged should be encouraged, not only to relieve the strain from refractive errors and light but also as a protection. Accidents from shooting a modern rifle, with our present high grade of ammunition are usually from small specks entering the eye, which large glasses would prevent. With 0.22 caliber rifles we frequently get powder burns from back fire, resulting from either overtempered shells or overloaded ones or a piece of shell may blow back. This unfortunately occurs in many of our best 0.22 rifles of present make. I have seen many bad results from shells whole or part being thrown into the eye by back fire or the extractor. This is more likely to happen to any person standing at the side and to the front of the shooter. Pieces of lead may fly off between the cylinder and barrel of a revolver. Another danger likely to occur to one standing in front and to side of line of fire, is that pieces of metal fouling or splinters from a poor bullet may fly off from the line of aim. I do not consider the "didn't know it was loaded" accident or the direct effects of a bullet as these are governed entirely by the law of consequences.

In conclusion, the eyes of the expert rifleman require the greatest care. Full correcting lenses should be not only allowed, but constantly worn. They must be made high enough, in far enough and large enough so that when the head is down and the eye looking upward to almost its limit vision will be distinct through the glass. The cylinder, if strong, must be rotated in the trial frame, with the head in the firing position to determine that vertical lines appear as such with the glasses on; otherwise, the rifle will be canted and will shoot to one side. A toric lens is necessary, and for shooting in bright lights or artificial lights, a light amber or some other color is essential. For presbyopia, bifocals are preferable or a pocket lens should be carried to adjust the sights and do other near work. The front sight should be large enough and of color contrasting to the target, to be clearly discernible to the emmetropic eye without accommodation. The rear sight should be close to the eye and of such a size and shape that the light being best through its center, the eye will naturally see the tip of the front sight through the center of the rear without accommodating, while vision is being centered on the target. Finally to the ametrope, large tinted lenses, properly correcting the ametropia and snugly fitting, will more than compensate the soldier in relief from fatigue, and in the protection of his eyes from accidents, for all the disadvantages at present urged against them. The frame should be of stiff material solid temples with soft ear pieces.

The present visual requirements are:

Second lieutenant in coast artillery corps, 20/40 either eye and good color vision. (General Orders 65, 1911.)

Second lieutenant in cavalry, field artillery and infantry, 20/40 each eye and good color vision. (General Orders 131, 1911.)

Second lieutenant in corps of engineers, same requirements. (General Orders 139, 1911.)

Officers of army for promotion — defects of vision entirely corrected by glasses do not disqualify unless due to or accompanied by, organic disease. (General Orders 192, 1909.)

Medical corps—must be not less than 20/100 and not below 20/20 each eye with glass. (General Orders 112, August, 1911.)

Recruits for army and signal corps—20/40 right eye 20/100 left eye, Ordnance Department and Hospital Corps—20/70 each eye, correctible to 20/40. (Circular 26, 1909.)

All of these requirements appear to be very reasonable.

723 West Park Street.

ABSTRACT OF DISCUSSION

MAJOR P. S. HALLORAN, U. S. A.: There are one or two additional reasons for the increase in the number of marksmen in the services of the United States. In the Navy, the gun pointer who is the most important man in firing, is required to have perfect vision 20/15. That policy has been adopted in recent years and is one feature which accounts for the increased average in the Navy. In 1908 the pay of the soldier was increased for proficiency in shooting. A man qualifying as expert receives $5 a month additional while sharpshooters and marksmen r[illegible] $3 and $2 respectively. This is quite an inc[illegible]d proficiency in shooting.

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12. E. C. Crossman, F. W. King and others in sporting magazines.

13. Parsons, J. H.: THE JOURNAL A. M. A., Dec. 10, 1910, p. 2027.

I am not in sympathy with the views of Colonel Banister and Major Shaw in that it is not necessary to have a clear vision of the target I have talked with many expert shots of the service, and they are all of the opinion that one must have a clear view of the target

The experiments conducted by these officers were with men who were good shots and, almost by intuition, due to their experience, they made nearly as good scores when their vision was reduced It is doubtful if a man with defective vision can ever become an expert marksman Focusing on the target is essential This is illustrated in trap shooting—the man does not see his sights, but he does have a clear view of his target

DR ARTHUR G BENNETT, Buffalo, N Y I have had experience in fitting distinguishing marksmen, because near Buffalo there is a rifle range where the experts go for their competition My experience with them has been that their shooting falls down about the age of presbyopia I had a shooting contest with a friend, who was myopic, his best vision was 20/100 He shot without glasses, but he had a good view of the rear sight, which I did not have His myopia was of the simple form that gave a blurred image of the target, but it was increased in size, and he could estimate it closer than I With that theory in view I fitted a number of marksmen at Niagara with a focus a few inches beyond the rear sight, and their testimony is that their shooting has come up to the standard that it was before they obtained the glasses They are satisfied and have referred patients to me from different parts of the United States, and with them I have followed out the same plan with a good deal of success The focus is about 3 inches in front of the rear sight It does not give them the sharpest view of the rear sight or quite such a blurred view of the foresight The target itself is a blur but is increased in size, and their shooting average has certainly pleased them

DR W C POSEY, Philadelphia My own views are in accord with those expressed by Dr Donovan and Major Halloran as I believe it should be the aim of the ophthalmologist to correct the eyes of the marksmen with the best degree of acuity possible for the target In actual warfare I think it would be ludicrous to send out sharpshooters to pick off the enemy with their vision focused by glasses to 3 inches beyond the rear sight As a member of a commission appointed from the Medical Reserve Corps by the Surgeon General of the Army some years ago to prepare a new standard of visual acuity, I was impressed with the little vision required by ordinary troops, nearly all of the firing being done in volleys at the command of the officers without any attempt at sighting at the enemy A vision of 20/40 in the best eye seemed to be perfectly adequate for all purposes I found that many marksmen of note had relinquished an amber tint in their glasses because they found it did away with the 'mirage," the term they employ to designate the atmospheric effect by which they judge of the direction and velocity of the wind etc The euphos tint had been given up for the same reason Dr Donovan's suggestion that the glasses should be set at some distance from the eyes, in order to avoid the moistening of the lenses by perspiration in field practice where the men perspire freely and must throw themselves quickly into a prone position, is a good one The removal of the lower half of the lenses possesses certain technical advantages

DR ALEXANDER DUANE, New York I am inclined to agree with those who express the opinion that sharp vision is necessary for long range shooting We do not need to see the object aimed at distinctly My own personal experience is that with uncorrected vision of 20/40 in the sighting eye, such as I have, I could see well enough at 200 or 300 yards but when I attempted to qualify at 500 yards as a sharpshooter I could not see the bull's eye well enough to get my eye on it, and I made no success at all as a marksman I am inclined to agree with the view of Dr O'Connor, who studied the subject carefully and gathered the opinions of experts in the Army Like him, I believe that we really do need sharp sight in the Army, such as is required in the Navy In the Navy they require for ordinary seamen 20/20 and for gun pointers 20/15, uncorrected vision

DR S D RISLEY, Philadelphia So far as my personal experience goes, both in target practice and in shooting at birds, sharp sight for the object aimed at is essential I am sure I always regard first the target or bird, and simply gazing through the sight, uncovered the object, getting a clear view of it Among my friends who are fond of marksmanship, two are very highly myopic and always used their glasses As marksmen they stand within the first five in the 100 for marksmanship One said My glasses minify the object and when I see it I have it down fine" So that these two men certainly depended on sharp sight for the object itself and not for the near sight I am sure that this agrees with my own personal experience

DR JOHN A DONOVAN, Butte, Mont We cannot draw very definite conclusions from one individual with myopia. A myope becomes accustomed to a blurred object which to him appears normal A good shot, in practice, will make much better scores on a blurred target than others can under more favorable conditions Most Americans are hyperopic and I am inclined to believe our first correction of presbyopia is really correcting the latent hyperopia, which accounts for the better scores obtained with these glasses

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THE FINDINGS OF THE TROPOMETER IN 100 NORMAL EYES AND ITS VALUE IN THE STUDY OF STRABISMUS

WENDELL REBER MD
PHILADELPHIA

Despite the fact that it is twenty-two years since Stevens introduced his tropometer to the profession (1890), it must be admitted that the instrument has not come into what might be called popular use It is true that Nicati eighteen years earlier adapted the ordinary perimeter to the rough estimation of the rotational power of the eyes, but to Stevens must belong the credit of devising a thoroughly practical instrument of sufficient mechanical convenience and scientific accuracy to justify its every day use in ophthalmic practice To maintain that it is without its limitations would be absurd, and to claim that it is without practical advantages is equally at variance with the facts The truth, as is usual, is likely to be found midway between these two extremes

There are many ways of estimating the rotational powers of the eyes, all of more or less use Casey Wood's method of using words of two letters to be carried as far out on the inside of the arc of the perimeter as they can be read is well known and among the most practical and useful of all the perimeter methods It is a subjective method and, in patients of average or more than average intelligence, a valuable test Dr Wood has modified this method somewhat as is shown in the following letter

> *My dear Dr Reber* —Many years ago, I made some observations on the field of monocular fixation in its relation to heterophoria and muscular asthenopia
>
> While I regard this method as roughly useful and in most instances a practical one, yet I have never regarded perimetric measurements as efficient as the tropometer of Stevens, if for no other reason than that the ocular movements inwards can be better measured with the latter instrument Whatever method be chosen however, standards normal to each instrument should be established for purposes of comparison The normal extent of each excursion is likely to vary in different forms of the tropometer, just as it varies from time to time in the same individual and in different individuals
>
> With this proviso let me say, that I propose what I regard as an improvement on the original lettered strips that present a mixture of letters and figures Following a suggestion of my assistant, Dr A S Rochester a certain area on the strips is concealed by the object carrier of the perimeter so that the

patient may read continuously as fast as the carrier is removed from this fixation point. I hope to publish a description of this little device so that judgment may be passed on it.

Let me add that whenever the field of monocular fixation is measured, the recording chart should have a normal field traced on it for purposes of comparison as in the ordinary charts of the field of vision.

Cordially yours,
Casey Wood.

An objective perimeter method to which I myself resorted for some years with much satisfaction is to have the patient hold in his hand Schweigger's hand perimeter. A small electric light is then carried along the arc of the perimeter and the patient instructed to follow it with the eye under examination. The surgeon meanwhile determines the movement of the eye by watching closely the movement of the corneal image made by the electric light. The moment the tiny image begins to waver, the eye is reaching its limit of rotation in that particular meridian.

This method is fairly accurate, requires no special apparatus and is quickly applied. The chief objection is that it is only an approximate measurement. Howe sought to obviate the objections to this method by mounting on the arc of the perimeter a small telescope whose axis is at all times perpendicular to the arc and exactly in the direction of a radius of the perimeter. Naturally this lends the needed element of exactitude to the estimation of the ocular rotations—but the tropometer is much easier to use, in less time, and with quite as much exactness. Indeed it is so easy of application that it may well be asked why it has not come into more general use.

To appreciate properly the usefulness of the instrument, it is essential that one should be familiar with the behavior of normal eyes under its observation.

The limits of the normal field of fixation,[1] as found by early observers are shown in Table 1.

TABLE 1.—LIMITS OF THE NORMAL FIELD OF FIXATION

	Schuermann	Volkmann	Hering	Kuster	Schneller	Landolt	Dunn
Up	34	35	20	33		44	42
Down	57	50	62	44		50	63
Temporalward	42	38	43	43	46 54	46	53
Nasalward	45	42	44	45	52 56	44	51

The wide variation in the excursions above cited cannot fail to excite interest. For instance, the difference in Hering's and Landolt's observations of 24 degrees in the upward rotation and 12 degrees in the downward rotation demands some manner of explanation. I think it may be found in the fact that these early observers resorted entirely to perimeter methods in their observations which, as I have already stated, are but approximate at best. Moreover, tests made with the perimeter are much more open to differences in interpretation than are tropometer tests—hence the equation of error will be much larger, as above graphically shown.

Duane (quoted by Howe) alludes to the difficulties of ascertaining the exact limits of the field of fixation, he gives the results of several measurements made on the same individual and states his belief that it seldom happens that any two tests agree exactly in all their details. That such tests do not agree *exactly* cannot be gainsaid. But that they do correspond fairly well can be claimed, I believe. Two individuals were selected for the purpose, one (A) a woman in secretarial work, the other (B) a youth of 16. Estimates were made on three different days without any knowledge of the results secured at the previous examination. The records are given in Table 2.

TABLE 2.—LIMITS OF FIELD OF FIXATION IN TWO PERSONS ON THREE DAYS

	Up	Down	Nasal	Temporal
A. Woman in Secretarial Work				
R E	32	50	50	37
	36	55	45	45
	32	52	50	40
L E	32	48	42	42
	35	50	43	45
	37	45	45	45
B. Youth Aged 16				
R E	40	50	48	48
	40	50	50	50
	40	55	55	55
L E	42	55	55	50
	45	52	60	49
	40	55	48	48

The figures show a slight variation of from 3 to 5 degrees in the patients from day to day and in the upward rotation in one, a variant of 7 degrees is also in the temporal rotation in the other case. Naturally if two or more observations are taken in any one case (and this is most excellent practice) they can justly be averaged and good working conclusions deduced therefrom. Indeed, repeated observations are of the same value in this line of our work as in refraction work and ought never to be omitted if the opportunity offers.

After consideration of the variations in normal rotations noted by the early observers, I was led into investigations bearing on this subject for my own satisfaction. Within the last two years I have selected fifty individuals (100 eyes) with normal muscle balance for infinity as the subjects of this inquiry. All of these individuals presented (with two exceptions) low grade hypermetropia or its allied states (1.00 diopter total or less). The two myopes showed a total of 2 diopters of error in one case and 5.50 diopters in the other.[2]

The rotations in these one hundred normal eyes were tabulated and averaged, affording the following tabulation, which I now use for my guidance:

Upward	36 degrees	Nasalward	50 degrees
Downward	52 degrees	Temporalward	48 degrees

Naturally in a series of such cases there were considerable variations from the averages just noted. For instance, in one case the upward rotation was but 25 degrees in the right eye (equals 11 degrees less than the average), however, it was but 28 degrees in the other eye, showing plainly a deficiency of upward rotation in both eyes. In this case the downward rotation equaled 54 and 52 degrees, respectively, conforming to the normal averages. This patient presented perfect muscle balance for both infinity and 13 inches (33 cm.) the occupation distance. Another case showed upward rotation in the right eye of 25 degrees and in the left eye of 29 degrees, but the downward rotations were 54 and 50 degrees, again pointing to the elevators as insufficient in their work.

On the other hand, excessive upward rotation was found in some cases, conspicuously in Case 29 of the series in which upward rotation equaled 45 degrees in the right eye and 47 degrees in the left eye But the downward rotations were 50 degrees in both eyes (equals normal) so that the case takes on the features of excess upward rotation pure and simple, as the lateral rotations were normal This case presented esophoria of 1 degree for infinity, but as we generally find in cases of excessive upward rotation, there was exophoria of 7 degrees at the reading distance (13 inches) This patient (a young man of superb physical build) presented an obstinate habit blepharospasm, only partially relieved by accurate refraction and convergence training

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[1] Howe The Muscles of the Eye, i.

[2] I am much indebted to Dr J[illegible]ph L Mc[illegible] my former associate now located in Portland, Or., for the material of this series on normal individuals.

After repeated observations Dr McCool and myself are both of the opinion that the factor of error in taking observations is about 5 degrees

The variations in our own series are as follows [3]

	Up	Down	Nasal	Temporal
Highest	48	65	60	60
Lowest	25	35	48	40

One other fact is of interest If the averages established by the early observers already quoted in the table (Schuerman, Volkmann, Hering, Kuster, Schneller, Landolt and Duane) are themselves averaged they approach very closely to those established in my own series to-wit

	Up	Down	Nasal	Temporal
Averages of early observers	33	54	47 4	45 7
Reber	30	52	50	48

I am therefore inclined to believe that the averages established for my own satisfaction will be likely to be pretty closely approximated by those that may be arrived at by most other present day investigators whether in our own country or abroad

It might be of interest also to note that I have had the eye-piece containing the tangent scale so modified that the scale can be rotated through 135 degrees of the circle instead of 90 degrees This can be very easily done by any mechanical optician and enables the ophthalmologist to estimate the two main oblique rotations as well as the vertical and lateral ones

While, as I have said the tropometer is easy of application, it is not so easy to form correct judgments as to the significance of the rotations when their limits have been learned Lucien Howe has very well said

> It is important to remember that the limits of the fields of fixation are not to be judged *entirely by the number of degrees* which an eye can turn in any given direction Much also depends on the *manner* in which the motion is made In some individuals, when the group of muscles under examination is strong, the eye will turn without hesitation to a certain point which is the limit of motion in that direction, and the globe can be held in that position steadily and without effort for several seconds On the other hand when this group of muscles is weak and the eye approaches the limit of fixation, it does so in a halting fashion

Hence it follows that once facility has been gained in the use of the instrument, much depends on interpretation just as in the use of the ophthalmoscope, the ophthalmometer, the perimeter the tonometer, the microscope or any other instrument of precision in use in our science

THE TROPOMETER IN THE STUDY OF STRABISMUS

In my hands the tropometer has not been of much service in studying the rotations of the globes in children under 7 years of age It will be readily seen, therefore, that its use has been confined to those strabismics who have arrived at or very near the age when the operative phase of this question is uppermost This seems to be the tropometer's largest field of usefulness Valk[4] is devoted to it in such cases, and Edward Lauder,[5] likewise, feels that it is practically indispensible in forming final judgments as to operation

In the sixteen case histories about to be cited, six (Group I) represent the type that in spite of the most careful orthoptic treatment, have passed their eighth year with a goodly residual deviation No patient of this group has submitted to operation

Six more (Group II) present the same previous history as those in Group I, save that the patients have all come to operation

Four more (Group III) were all strabismics in their early childhood, but under orthoptic treatment alone have secured parallel axes, their rotations furnish interesting reading

GROUP I ESOTROPICS WHO SHOULD BE OPERATED ON

CASE 1—W S, 9 year old boy, first seen when 3 years old, and esotropia equaled 35 degrees Developed after pertussis No family history of strabismus Refraction in 1906 was

R— 50 sph — 50 cyl axis 45 degrees
L—1 00 sph — 50 cyl axis 135 degrees

Present refractive status

R —1 25 sph — 75 cyl axis 45 degrees
L—1 50 sph — 75 cyl axis 135 degrees

His present deviation is 30 degrees, with vision 5/6 in each eye (pure alternating strabismus)

His tropometric rotations equal

	Up	Down	Nasal	Temporal
R	40	40	60	40
L	40	45	60	40

As would be expected in alternating esotropia, both eyes show excessive nasal rotation and defective temporal rotation The vertical muscles are not above suspicion in this case, as upward rotation is excessive in each eye and downward rotation defective (see average normals) The patient will be operated on within the next month or two by advancement of each external rectus

CASE 2—F G, a 12 year old boy, first seen at 4 years of age Esotropia 20 degrees Strong family history of strabismus Refraction at that time

R +4 00 sph +1 00 cyl axis 90 degrees equals 5/7
L +1 00 sph +1 25 cyl axis 90 degrees equals 5/7

Last seen January, 1912 Refraction equaled

R +3 50 sph +0 75 cyl axis 90 degrees equals 5/6
L +3 25 sph +1 00 cyl axis 90 degrees equals 5/6

Deviation still equals 20 degrees

Tropometer rotations are as follows

	Up	*Down*	Nasal	Temporal
R	30	45	60	40
L	30	50	65	35

Thus, as in the preceding alternating case, both nasal rotations are excessive and both temporal rotations defective Operation declined

CASE 3—I S, 8 year old boy first seen when 5 years old A frail puny child with a doubtful history of acute polyencephalitis a year before Esotropia 45 degrees Left eye deviating constantly Refraction equaled

R +1 00 sph + 50 cyl axis 75 degrees
L—1 00 sph —2 00 cyl axis 135 degrees

Present refraction

R + 50 *sph + 50 cyl axis* 75 degrees equals 5/6
L—1 50 sph —2 50 cyl axis 145 degrees equals 5/60

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[3] These figures will be seen to approach very closely to those set down by the inventor of the instrument (Stevens A Treatise on the Motor Apparatus of the Eyes F A Davis Company 1906) who gives the following as his idea of normal rotations

Up	Down	Nasal	Temporal
33 37	45 50	about 50	about 45

[4] Valk Strabismus or Squint

[5] Lauder, E Tr Am Acad Ophth and Oto Laryngol 190

The tropometer showed

	Up	Down	Nasal	Temporal
R	30	45	45	40
L	30	53	60	33

In this, the monocular type, the abnormal rotations are confined to the deviating (left) eye, the nasal rotations being excessive and the temporal markedly defective. Operation advised—advancement left externus and tenotomy left externus.

Case 4.—L. B., a 10 year old boy, undersized, neurotic son of a neurasthenic mother. First seen when 8 years old. Deviation 32 degrees, left eye deviating constantly. Present refraction

R +0 25 sph +0 75 cyl axis 90 degrees equals 5/5
L +0 25 sph +0 75 cyl axis 90 degrees equals 5/15

Has worn glasses for five years. Deviation now 30 degrees. Tropometer equals

	Up	Down	Nasal	Temporal
R	42	45	60	45
L	40	58	65	35

This is another typical monocular case, although the vertical muscles are not above suspicion. Operation declined.

Case 5.—L. G., a 9 year old boy when first seen, deviation equaled 35 degrees, always the right eye. A paternal uncle had strabismus in childhood. Patient ophthalmoscopically normal in both eyes, but examination revealed a small positive central scotoma in the right (deviating) eye. Present deviation 25 degrees. Present refraction

R (retinoscope) +0 75 sph + 25 cyl axis 90 equals 1/60
L +1 25 sph equals 5/5

Tropometer shows

	Up	Down	Nasal	Temporal
R	48	50	65	45
L	50	45	48	45

Excessive nasal rotation in the deviating eye is here shown, as would be expected. The temporal deviation is normal, however, and the action of the elevators so markedly excessive that were I permitted to operate on this case I should tenotomize both superior recti (moderately) before directing any surgery to the lateral muscles.

Case 6.—M. B., a 7 year old girl, developed esotropia in her second year. Right eye deviated always. No family history of strabismus. Deviation 37 degrees, right eye. Eye grounds normal. Refraction is

R (retinoscope)—1 00 cyl axis 180 degrees equals 2/60
L +0 75 cyl 90 degrees equals 5/7

The rotations are

	Up	Down	Nasal	Temporal
R	34	51	60	35
L	40	45	55	40

Advised tenotomy right internus and advancement right externus. Operation declined.

In these six cases, deficient temporal rotation is shown in one or both eyes according as they are monocular or alternating esotropias, or the nasal rotation of the deviating eye or eyes is excessive, or in some cases both conditions obtain.

They may be summarized as follows:

TABLE 3.—DEFICIENT TEMPORAL ROTATION IN SIX CASES SUITABLE FOR OPERATION

Case	Variety of Esotropia			Up	Down	Nasal	Temporal
1	Alternating		R	40	40	60	40
			L	40	45	60	40
2	Alternating		R	30	45	60	40
			L	30	50	65	38
3	Monocular	L. E.	R	30	45	45	40
			L	30	53	60	33
4	Monocular	L. E.	R	42	45	60	45
			L	40	58	65	35
5	Monocular	L. E.	R	48	50	65	45
			L	50	45	48	45
6	Monocular	R. E.	R	34	51	60	35
			L	40	45	55	40

GROUP II. ESOTROPICS AND HYPERTROPICS WHO HAVE BEEN OPERATED ON AFTER TROPOMETRIC STUDY

Case 7.—R. B., boy 9 years old when first seen June 2, 1908. Monocular esotropia of 40 degrees, left eye deviating. Wearing

R —0 75 cyl axis 180 degrees equals 5/15
L—0 50 sph —1 00 cyl. axis 85 degrees equals 5/30

Under thorough cycloplegia there was found

R.—0 50 sph.+2.00 cyl axis 45 degrees equals 5/9
L—2 00 sph —4 00 cyl axis 170 degrees equals 5/12

Eye grounds were normal. Stereoscopic exercises were ordered and faithfully followed out. Two years later the deviation equaled 30 degrees and refraction was

R —2 00 cyl axis 180 degrees equals 5/7
L—2 00 sph —4 00 cyl axis 150 degrees equals 5/15

The tropometer at this date showed

	Up	Down	Nasal	Temporal
R	45	45	60	45
L	45	50	70	40

Dec. 27, 1912, under local anesthesia modified tenotomy of both superior recti and internal recti, this because of the preponderance of upward rotation as shown by the tropometer. March 2, 1911, about 5 degrees of residual convergent deviation. Rotations at this date

	Up	Down	Nasal	Temporal
R	30	50	50	18
L	30	52	52	15

Case 8.—J. S., a boy aged 16, first seen July 16, 1910, with left hyperesotropia, the upward deviation being 10 degrees, the inward 50 degrees. The eye grounds were normal. He was wearing

R +4 00 sph +1 00 cyl axis 90 degrees
L +4 00 sph

Under thorough cycloplegia we found

R.+4 00 sph +1 50 cyl axis 90 degrees equals 5/4
L.+4 00 sph.+1 50 cyl axis 135 degrees equals 5/7

The rotations follow

	Up	Down	Nasal	Temporal
R	15	42	60	45
L	50	35	65	30

Sept. 1, 1910, under local anesthesia the left superior rectus was tenotomized, by which the left eye was brought down almost on a level with the right eye and the lateral deviation reduced 10 degrees, leaving a residual convergence of the left eye of 40 degrees. A month later operation was performed consisting of wide resection and advancement of the left externus and moderate tenotomy of the internus. Result was 10 degrees of residual convergence under cover for infinity.

Case 9.—L. Z., a boy aged 11, first seen Nov. 13, 1911. Pure alternating esotropia of 50 degrees. Wearing

R —19 00 sph equals 5/30
L—18 00 sph —1 00 cyl axis 165 degrees equals 5/30

Eye grounds characteristic of high myopia, but no staphyloma posterior, and retina and choroid in unusually good condition. Tropometer showed

	Up	Down	Nasal	Temporal
R	–5	40	70	0
L	0	15	60	10

One week later under local anesthesia moderate tenotomy of both interni and advancement of both externi. March 1, 1911, result residual convergence for infinity of about 10 degrees under cover.

Refraction to-day

R—20 00 sph —1 00 cyl axis [illegible] degrees equals [illegible]
L—16 00 sph —1 00 cyl axis [illegible] degrees equals [illegible]

These were ordered for constant wear.

Case 10.—May 11, 1908, H. C., a woman aged 25. Esotropia since infancy. Left eye always deviating. Vision equals right

5/7, left, 5/12 Esotropia equals 20 degrees Eye grounds normal Refraction showed

R +0 50 sph 25 cyl axis 100 degrees equals 5/5
L +0 75 cyl axis 90 degrees equals 5/7

Rotations with tropometer

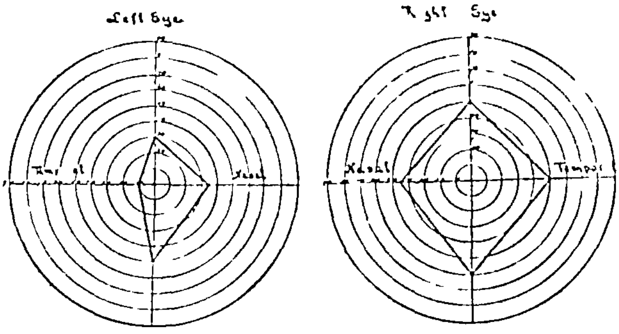
	Up	Down	Nasal	Temporal
R	5	50	54	10
L	30	50	55	15

The left eye stopped promptly when the 15 degree mark was reached Under local anesthesia, advancement left externus Result, residual convergence for infinity of 5 degrees It is not unlikely that in this case there was congenital paresis of the left external rectus

CASE 11 —Mrs A C, aged 30 Strabismus since childhood, always left eye Vision, R, 5/9, L., 5/60 Eye grounds normal Tropometer equals

	Up	Down	Nasal	Temporal
R	50	60	45	50
L	10	50	35	10

As in the preceding case the diagnosis here was congenital paresis of the external rectus (See illustration of motor fields) Under local anesthesia, advancement of the left external rectus was attempted, but practically no muscle was found save a small thin fibrous tendon Wide resection of the conjunctiva and capsule was therefore done Result, poor Not more than 10 degrees of external rotation gained although the position of the eye was somewhat improved This may be attributed to the fact that one of the stitches pulled out The final postoperative diagnosis was congenital underdevelopment of the left external rectus muscle



Motor fields in Case 11

CASE 12 —*Patient* —J C a boy aged 16 *Left esotropia of* 10 degrees and hypotropia of 20 degrees Wearing a good correction for the past two years (high H + Ah) The esotropia developed soon after diphtheria six years ago Patient complained of diplopia in the upper field, giving rise to difficulty in reading and writing Study of the double images showed paresis of the left superior rectus The tropometer showed the following rotations

	Up	Down	Nasal	Temporal
R	35	50	52	40
L	20	60	58	38

The eye grounds were normal Corrected vision equaled right, 5/5, left, 5/7 Under local anesthesia, wide resection (about 5 mm) of the left superior rectus was done along with tenotomy of the inferior rectus in the same eye, and buttonholing of the internal rectus Result one week later Lateral balance and 2 degrees of residual left hypophoria. No subsequent estimate of the tropometric rotations was made, as the *patient went to his home in a distant city one week after* operation, but later he reported that he could use his eyes in all near work with perfect comfort

Remarks —In each of the cases in this group, the tropometer gave positive and accurate indications as to operation and as to which muscle should be operated on It is freely admitted that by close inspection of the behavior of the ocular muscles alone most operators would have arrived at probably the same conclusion as to operation, but they would have been obliged to proceed to operation without *precise* knowledge as to the rotational powers of the muscles they were about to operate on

GROUP III ESOTROPICS THAT ARRIVED AT PARALLELISM OF THE VISUAL AXES ON ORTHOPTIC TREATMENT ALONE

This group comprises four cases of esotropia that arrived at parallelism of the visual axes on orthoptic treatment alone The first two are monocular cases — the last two alternating ones

CASE 13 —A 14 year old boy, studied for several years When first seen he exhibited deviation of the right eye of 28 degrees and vision in that eye of 1/60 To-day his vision in the right eye is 5/30 and his eyes are straight His refraction is a high H + Ah condition His rotations are

	Up	Down	Nasal	Temporal
R	35	4	45	45
L	5	50	50	42

CASE 14 — A 12 year old girl, whose case has been studied for seven years Esotropia (right eye) 32 degrees when first seen and vision in that eye 3/60 After seven years' use of a good correction and stereoscopic treatment she presents absolutely straight eyes She is the subject of high myopic astigmatism, her vision being to day right, 5/15, left, 5/6 partly The rotations at present are

	Up	Down	Nasal	Temporal
R	35	46	50	40
L	0	15	45	40

CASES 15 and 16 —Brother and sister, both studied for seven years The boy was 8 and the girl 11 when first seen Both were treated for high esotropia by a confrère when 3 years of age High H + Ah conditions were in evidence in both cases totalling 4 diopters in the boy and 6^1_2 diopters in the girl In both cases vision is full 5/5 in both eyes, and the muscle balance is normal with full binocular vision The boy's rotations are

	Up	Down	Nasal	Temporal
R	40	55	55	45
L	41	50	58	47

And the girl s

	Up	Down	Nasal	Temporal
R	[illegible]	58	50	40
L	41	55	45	41

These cases just cited are splendid illustrations of the results that often attend the earliest careful attention to strabismic children When the refraction is thoroughly studied and the eyes put under proper working conditions the eyes and their muscles and innervations develop along normal instead of abnormal lines Once abnormal innervational habits have been formed, abnormal conditions probably develop in the muscles concerned, such as spasm and overdevelopment in the internal recti of esotropics and stretching and underdevelopment of the external recti Under such conditions it will be difficult to accomplish the same result in the grown child without operation, as has just been shown in the four cases cited

When operation becomes imperative and has been decided on, the methods in vogue are to have the patient *follow the surgeon's finger in the lateral and vertical* meridians This furnishes information as to the behavior of the *associated* muscles of the eyes as well as giving some idea of the rotational power of each eye The study of each eye in relation to its fellow ought never to be omitted, for in this way pareses are often detected But individual study of the rotational power of each eye with the tropometer is equally, if not more important, and will lend much greater accuracy to all such observations

The plea is made for the fullest study of each case of esotropia before proceeding to operation, and as an aid to the exactness of details in such study nothing at present exceeds in value the tropometer

1212 Spruce Street

ABSTRACT OF DISCUSSION

Dr Edward Lauder, Cleveland The observer should be familiar with the behavior of normal eyes under the tropometer In orthophoria there are variations from the normal rotations, namely, 33° upward, 50° downward 55° inward and 50° outward, as given in several text books In all orthophoric cases, however the approximate relative rotations, as given, obtain, so that, having thoroughly learned and appreciated this fact, we more readily learn to interpret our readings in all abnormal cases

To any one who has used the tropometer the question of the proper adjustment of the head, no doubt has presented itself Great care should be used in this, and when making the ocular rotations the patient should grip the piece of wood firmly with his teeth so that he will avoid the incentive to turn his head Perfect adjustment of the head being difficult, it is well, in investigating any case of ocular rotation, to make several examinations at different times and in this way either prove the findings or arrive at a satisfactory average

Considering the value of the tropometer in the study of strabismus, I cannot fully agree with Dr Reber when he says "This seems to be the tropometer's largest field of usefulness" What substitute have we in the investigation of numerous cases of latent strabismus or heterophoria? Furthermore there are those two other types of cases—dextrophoria and levophoria—in the investigation of which we would be entirely at sea did we not have the use of a tropometer

Dr Francis Valk, New York I have always held the tropometer to be one of our best instruments It invariably confirms all the other examinations Dr Reber seems much worried because it does not give exact averages We say that 20/20 is an average for vision, and yet it is not for many must have noticed vision 20/15 and 20/10 even If we take Dr Stevens' records of 33 up and about 55 down and 55 in and 50 out, that is enough What I look at is simply the relation which these figures bear to each other What difference does it make if one figure appears to be 49 instead of 50? The point is, where these conditions of heterophoria exist, to find the relation of one to the other, then you know what the true muscle balance is If we are specialists we must be able and willing to diagnose every case of abnormal motility The great advantage of the use of this instrument in your practice when you come to correct the motility and refraction is beyond argument

Dr A Duane, New York While I agree with Dr Reber as to the importance of testing the rotation of each eye separately, I cannot agree with him that this measurement is nearly as valuable a means of diagnosis or as valuable an indication for treatment as the measurement of the coordinate movements—convergent, divergent and parallel—of the two eyes acting together All my observation has led me to believe that ordinary squint is essentially a disturbance of coordination, that it is an affection of convergence or divergence and does not involve, primarily at least, the inward and outward rotations *per se* At all events some cases of squint are alike in rotations and yet are different in nature and require different treatment Thus a convergent squint in which the convergent element is in excess as is shown by the fact that the deviation is considerably more marked for near than for distance and that attempts at convergence beget a spasmodic inversion of the eye is essentially different from a case in which the deviation is at least as great for distance as for near and the converging power is evidently not excessive And yet in these two differing cases the monocular rotations may show little or no difference So also two cases of divergent squint may be quite alike so far as the power of monocular rotation is concerned and yet may differ *in toto* in nature In one the deviation for distance is great for distance and less for near and the power of convergence absolute or relative, is still good in the other the deviation for near is much greater than for distance and convergence is *nil* The former will require one method of treatment the latter another even though the movements of each eye in the two cases are the same Even in paretic squint unless pronounced I find the measurement of the rotations of each eye taken separately an unsafe guide—far less trustworthy than the measurement of the parallel movements of the two eyes as determined by the variation of the screen deviation in different directions of the gaze the lagging of one eye behind the other (on the contrary its spasmodic shooting beyond the other) in one definite portion of the field of fixation and the measurement of diplopia on the tangent plane

Dr G C Savage, Nashville Dr Reber is right in his contention that the inherent strength of a muscle to be operated on should first be known In heterophoria this can be done in one of three ways first by the rotary prism determining *the duction power of the muscle* second by the perimeter determining the verting power of the muscles third by the tropometer also showing the verting power The duction is applicable only to heterophoric conditions and in my judgment is the test that should be resorted to in these cases In heterophoria the verting test alone is possible and this must be accomplished by the use of either the perimeter or the tropometer With the perimeter adversion is interfered with by the nose and supervision is interfered with by the brow With the tropometer there is no interference with the version test in any direction Of course both the tropometer and the perimeter could be used in determining the verting power of the muscles in cases of orthophoria as can also the duction test by means of the rotary prism but the latter I conceive to be far preferable The duction test shows whether the orthophoria is sthenic or asthenic and if the latter it gives indication as to necessary treatment by means of exercise In lateral and vertical heterophoria the duction power of one of a pair of opposing muscles should be greater than the duction power of the other member of the pair and yet the one with greater power may in itself not be intrinsically too powerful and if this be the case the strong muscle should not be operated on but the weaker muscle should be given greater strength by being advanced or shortened the latter being the safer and the surer operation Even the duction test will show that the stronger muscle is inherently too strong and yet the excess in strength is not very great and then the indication would be to do a partial tenotomy of the stronger and a shortening of the weaker muscle If in a case of esophoria the abduction should be 6 or 8 degrees then the internus alone should be operated on In determining the muscle to be operated on and the character of operation to be done the tropometer or verting test would *not fall far behind the phorometer or duction test* Only the verting test is available in cases of heterotropia If the too strong muscle has excess of verting power it of course should be weakened and in nearly all cases this will be true or if its excess of verting power is not great then the balance must be restored by shortening or advancing its opposing muscle at the time that the tenotomy of the too strong muscle is done The tropometer will rarely fail to show that the too strong muscle has too much verting power hence in nearly all cases of heterotropia such a muscle should be weakened The cases are rare in which a weak muscle should not be simultaneously shortened or advanced

Dr Wendell Reber Philadelphia The point as to heterophoria touched on by Dr Valk is one of the things that led me to take up the tropometer once more I was careful to say that in high grade latent deviations the instrument would be advantageous, but in ordinary cases of imbalance I am still skeptical I agree absolutely with Dr Duane about the study of coordination or associated movement I believe that by combining the study of the associated and coordinated movements with a study of the individual muscles we shall gain information about the eyes that we have not heretofore had

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

PAPERS[†] AND DISCUSSIONS

THE SPECIALIST IN MEDICINE[*]

GEORGE E. SHAMBAUGH, M.D.
CHICAGO

The practicing specialist in medicine has made for himself a secure position. The advantages afforded by concentration of effort in a restricted field and by closer attention to details have given to the specialist a peculiar opportunity of taking an important part in medical progress. The development of the fundamental sciences underlying medicine owes a great deal to the efforts of the practicing specialist whose studies have reached out to problems in physiology, in anatomy, in embryology and in all the sciences which touch his field of work.

The specialties stand out distinctly as outposts along the advanced line of medical progress. The real specialist in medicine, as in any field of work, is one who by persistent and concentrated efforts succeeds in placing himself in touch with this advanced line and in a position where he is able to see and to attack the various unsolved problems in his particular field. The idea of investigation, therefore, is fundamental in the conception of the real specialist whether he be a specialist in medicine or in another subject. The problems in clinical medicine which more often attract the practicing physician differ only in kind from the problems which the distinctly laboratory worker sets out to solve. The practicing specialist in medicine should be familiar with the methods of research and be able to apply them in the study of cases and in the solution of his clinical problems.

Could anything be more inspiring to the young man entering the practice of medicine than the opportunity offered by the specialties, in which, in limiting his work to a particular field, he may hope by concentration and perseverance to get in touch with the advanced line of medical progress and to take an actual part in the solving of its problems? That man who has the perseverance to succeed in this effort has earned the right to be called a specialist in his chosen field. The dilletant in medicine who loiters along the wayside and never makes himself master of his subject is not a real specialist any more than this type ever becomes a recognized specialist in any field of work. We are inclined to use the term specialist too loosely in medicine. Any practitioner who essays to restrict his practice to a particular field thinks he has the right to be called a specialist. He may be a mere dilletant in medicine and, as far as his knowledge of the specialty goes, an ignoramus pure and simple, yet he may pose before the public as a specialist, an expert, an authority, in a technical and difficult field of work.

This opportunity for concentration of effort and for doing scientific work has attracted to the medical specialties in this country and abroad many from the best type of medical practitioners. These are men who are persevering, aggressive, who have the instinct for investigation and whose efforts have secured for the specialists in medicine their recognized position as consultants, as experts in solving difficult clinical problems. The specialties *in medicine are unfortunate, on the other hand,* in attracting also a less desirable class of practitioners, men whose chief interest in their work is commercial and who think they see in special practice opportunity for receiving larger returns for their services. In this respect the specialties resemble surgery, which, as compared with internal medicine, attracts a disproportionate share of those less desirable men whose interest in medicine is largely commercial and who lack the full measure of those higher humanitarian instincts which attract many to the study of medicine and which should be a conspicuous element in the character of every one who holds the position of medical adviser in a community. We have to admit that it has been chiefly the surgeon and the specialist and not the consulting internist who have been guilty of the dishonest practice of overcharging and of the division of fees.

We are facing at present in this country a situation which reflects discredit on the general medical profession and particularly on the specialties of the eye, ear, nose and throat. The situation is one that has developed out of our deplorable lack of proper standards in medical education. It has been shown[1] that but a couple of years ago we still had in this country more medical schools than are to be found on the whole continent of Europe. A large number of these are purely commercial proprietary institutions with practically no standards and sustained chiefly by clever advertising methods. The result has been an enormous overproduction of "uneducated ill-trained medical practitioners." We have in the United States, for example, four or five times as many physicians in proportion to the population as exist in an older country like Germany.

The specialties of the eye, ear, nose and throat have had to carry a disproportionate share of these uneducated, ill-trained practitioners, who, failing to succeed in competition with the better trained men in their communities, seek to better their condition by limiting their practice to these special fields. The loose way in which in this country we have countenanced the use of the term specialist has made it possible for these men with often no further preparation than a few weeks' attendance at a postgraduate school, to pose in their communities as qualified specialists in the eye, ear, nose and throat. In many towns, throughout the middle west at least, where the legitimate work in these special fields could be easily taken care of by one, or at most two properly qualified specialists, it is not uncommon to find six or more practitioners advertising on their signs and in the local papers as specialists in the eye, ear, nose and throat. In these cities a larger number of practitioners are sometimes found limiting their work to these specialties than are engaged in the whole field of general practice. It is needless to point out that the public suffers through this overproduction of untrained specialists. It is this type of specialist who justifies the fear so often expressed that the specialist, working in a restricted field, may lose the proper sense of relation between his work and that of the internist. The lack of a proper general medical education and a faulty preparation for special practice give to these men their narrow perspective which makes them disposed to see all human ailments through the particular speculum they may be using.

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[*] Chairman's address.

[†] As the footnotes indicate, certain papers are here printed in abbreviated form.

[1] Medical Education in the United States and Canada. Report to the Carnegie Foundation for the Advancement of Teachers, 1910.

The postgraduate schools of this country are supported largely by the attendance of practitioners who are seeking courses on the eye, ear, nose and throat. In foreign medical centers, where courses are offered to practitioners of medicine, most of the men taking these courses are Americans, and of these at least 90 per cent are looking for courses in these specialties. Our postgraduate schools are often blamed for encouraging the development of the so called "six-weeks specialist," the type which the late Professor Schwartze designated as the "pseudospecialist." As a matter of fact, however the postgraduate schools are doing only that which is demanded of them. When the majority of the men who come to these institutions are uneducated, ill-trained practitioners, who expect after a few weeks' or at most a few months' attendance on courses to return as qualified specialists, what can be done? To meet such a situation only the most superficial, elementary, so-called practical instruction can be given. No sustained effort can be attempted to give that special training in the fundamental sciences of anatomy, physiology, embryology, etc., which should form the foundation for any one who is preparing to do special practice. The courses covering the specialties which are required of the undergraduate student in our best medical schools are superior in every detail to those courses now offered in the postgraduate schools to prospective specialists.

The courses for practitioners both here and abroad naturally fail signally to give that sort of preparation which ought to constitute the fundamental training for every bona fide specialist whether in medicine or in another subject. This is the training for investigation, for research. Courses of instruction, the sole purpose of which is to drill the student in the established facts in medicine, are at best but superficial. The course which leads the student to approach these facts with the open mind of an investigator gives him the training best suited to meet the problems in routine practice. It is not so much the number of facts that a student acquires as it is the methods for investigating these facts that is of greatest value. The question has often been asked why it is that from so many of our physicians who seek postgraduate study abroad so few ever reach that advanced position where they are able to make actual contributions to medical progress. One reason is that most of them have been content in their studies to have facts ladled out to them and have failed to obtain the really important things — the spirit of research and the methods for investigating these facts.

The discredit which the overcrowding of the profession by uneducated, ill-trained practitioners has cast over the specialties in this country is but temporary. The medical as well as the lay public are demanding more and more that the physician who would be recognized as a specialist must have adequate preparation. In this country, just as abroad, he must identify himself with scientific medicine and win his spurs by making some real contribution to medical science. The readjustment throughout the country of the proper relation of the specialist to the general practitioner, the relation of the consultant, the expert, who by perseverance has pushed through to the advanced line in his chosen field, this readjustment will be hastened very much by correcting the existing evils in our system of medical education. Already this is being worked out. Already we can see the passing of the commercial proprietary medical school. Medical education in this country is to be taken over again by the university where it formerly was and where it rightfully belongs. Those spurious medical departments of universities, the attached proprietary institutions, where all that the university gave to its medical school was its name, are already disappearing. In their place will be developed the real university department of medicine, in which the idea fundamental in any department of a real university, the idea of investigation will be made prominent. It is toward this goal that the trend of medical education is leading.

We are still far from the realization of an actual university department of medicine although we have passed the stage where a self-respecting university willingly permits its name to be attached to a proprietary medical college. We recognize that a medical school organized as is the proprietary medical college cannot be called a bone fide department of a university. It will take time and patience to work out the development of the university department of medicine from the existing type of medical school, for there remains a long step between the medical school as it still exists in this country and a bona fide department of a real university. The full significance of this difference will not always be recognized by men who have grown up in the atmosphere of the proprietary medical college. These men are often found opposing the introduction of university ideas and university methods in medical teaching on the plea that the medical student needs practical as opposed to scientific instruction, that the research man is not the best instructor, etc. They are all anxious enough to have the institution called the medical department of a university but are opposed to the introduction of those methods and ideas which alone can make it a bona fide department of a university. Actual progress in the development of the real university department of medicine must come chiefly from the university. The American Medical Association working through its Council on Medical Education, has in a very few years accomplished a great work, especially toward standardizing the entrance requirement for medical schools, but the keynote to the medical school of the future, the university department of medicine, must come from the university itself, where alone the ideals and aspirations of university instruction are fully appreciated. President Shurman in an address on "The Obligation of the University to Medical Education," has sounded this note where he says: "Have done with this sham in medical education . . . let this new institution be not an attachment (or detachment) to the university but an organic and vital member like other departments of the university and, like them animated by its spirit and controlled by its standards."[2]

If the undergraduate instruction in medicine ought to be in the hand of the university, even more urgent is it that the real postgraduate instruction must be undertaken by the university. When the undergraduate instruction in medicine has been thoroughly done, the elementary work in the specialties will not need the "subsequent patching" which is all that the existing postgraduate schools are prepared to do. Real postgraduate instruction in medicine can develop only in connection with a university department of medicine, not in separate, so called postgraduate institutions. When once the universities have completed the process of taking over the undergraduate instruction in medicine and have established real university medical departments, it is their problem to provide suitable courses for the training of the medical specialist Such courses should be arranged to cover at least two or three years' work after the undergraduate instruction in medicine has been completed They might very properly be of such a character as to lead to the higher degree in medicine, the degree of doctor of philosophy, for example, in ophthalmology or otology These specialties are fully as technical and as far removed from general medicine and general surgery as is dentistry, yet the state requires of the dentist three years' special training The public is entitled to at least the same protection from untrained specialists in medicine as from untrained dentists, particularly since the work in these specialties is the more difficult and also more dangerous The development of the specialties in medicine is so recent that we have not as yet become thoroughly adjusted to the new situation The training of the specialist presents an entirely new problem in medical education The feeble efforts that have been made in postgraduate schools to supply this training have fallen far short of really solving the problem When once the proper facilities are offered by the universities for adequate training in the specialties, it is but a short step for the state to require this training before the practicing physician can enter special practice

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[2] The Journal A. M. A., April 16, 1910, p. 1[illegible]

All that we offer now for the training of the specialist is an attempt to provide the top story of his preparation, the purely clinical aspect Is it any wonder that so many, doing special work with this sort of preparation and no adequate general medical training, become top heavy and overtreat patients locally who should be referred back to the general physician? It is no surprise that under these conditions the nearest approach to a scientific contribution from so many who share this advantage of working in restricted fields, is the more or less garbled case report The surprising thing is that with conditions as they are at present there should have developed in this country so large a body of real scientific specialists, men who have mastered their subjects, who are doing aggressive work in real medical progress, and who easily take their position among the foremost practicing specialists in the world We have much for which to be proud and when once our temporary impediments have been removed, when conditions in this country are made more favorable for the development of the trained scientific medical specialist, we may confidently hope to take a much more prominent part in the progress of medical science

122 South Michigan Avenue

ETHMOIDITIS AS A COMMON SEQUEL (NEVER THE CAUSE) OF POLLINOSIS † (HAY FEVER)

FRANK C TODD, M D
MINNEAPOLIS

It has been proved by the work of Dunbar, supplemented by the researches of Kamman, that the pollen of certain grasses, grains or weeds is responsible for the production of pollinosis in susceptible individuals Not only has it been demonstrated by Dunbar that the pollen of these definite grains and weeds is the sole exciting causative factor, but he has succeeded in isolating from the pollen a certain albuminous portion which is the toxic agent This poison not only gives rise to the familiar symptoms of pollinosis but is so intense a poison to susceptible individuals that as small a quantity as 1/10,000 mg will produce a reaction, although a much larger dose is inert in the case of people not susceptible The susceptibility of different patients varies in degree It has been demonstrated that a small dose given hypodermatically will quickly kill an animal susceptible to hay fever

Symptoms are general as well as local, though eye symptoms and nose symptoms predominate because here the pollen gains its easiest access The poison, however, will affect the susceptible patient wherever applied, be it on the mucous membrane of the eyes, nose, mouth, throat or rectum, and likewise may affect the skin when rubbed on the surface, while most ready absorption takes place when it is administered hypodermatically

The other symptoms are largely nervous in character—irritability, loss of sleep, loss of appetite, etc —and these nervous symptoms will be present in any individual, unless his susceptibility is slight, regardless of whether or not he may be classed as a neurasthenic Such symptoms have resulted in misconception on the part of the medical profession, and the disease has been wrongly classed as a neurosis, in the sense ordinarily meant by that term Nasal malconditions, deformities, and so called sensitive areas are not causative factors in hay fever, and the disease is often found in patients having normal nasal conditions, but naturally patients having nasal malconditions suffer more with nasal symptoms

This preamble ought not to be necessary as these facts are well known and have been thoroughly proved They are here reviewed and emphasized because despite their truth a large part of the medical profession seems unaware of the facts or else fails to interpret their significance, and our books still continue to publish old theories, long since proved untrue, regarding hay fever [1]

HOW ETHMOIDITIS AND OTHER SINUS AFFECTIONS RESULT FROM HAY FEVER

During each attack of hay fever swelling of the turbinates takes place, causing defective drainage, secretion occurs, infection is added thereto and we have present during pollinosis, ethmoiditis and sometimes pansinusitis The recovery of the sinusitis usually occurs when the pollen ceases to circulate in the air but repeated attacks of pollinosis may result in a persistent lesion and thus the patient may develop chronic ethmoiditis, sphenoiditis, frontal sinusitis or pansinusitis, often accompanied by persistent swelling of the turbinates and especially the middle turbinate

Thus is explained the frequent prevalence of chronic ethmoiditis (and other sinus complications) with attendant polyps, swelling of the middle turbinate, etc, so often found present in hay fever patients It also explains the error which rhinologists have made, in assuming that because of the coincidence of hay fever in conjunction with ethmoiditis, swollen middle turbinates and polyps, hay fever is the result of such nasal malconditions

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† Pollinosis meaning pollen-disease or pollen sickness was suggested by me in a paper published Aug 15 1908 in the *Northwestern Lancet* as an appropriate name for the disease of which we have two common forms i e pollinosis æstiva (summer pollen sickness) the miscalled rose fever and pollinosis autumnalis (autumn pollen sickness) or hay fever Other names which have hitherto been suggested such as hyperesthetic rhinitis do not properly apply as they signify a disease limited to the nose only

[1] Every rhinologist should read Dr Reik s article on hay fever in his recently published book on Diseases of the Nose and Throat Dr Reik truly states the facts and severely criticizes the medical profession for its ignorance on the subject of hay fever

Nasal deformities, lesions and "sensitive areas" have been held responsible for hay fever for many years and now that they must be discarded sinus diseases are also erroneously held responsible So good an authority as Ballenger in his book discussing the causes of hay fever makes the following admission "I have seen cases (of hay fever) in which there was no obstructive septal deformity and no absolute occlusion of the olfactory fissure by turbinal enlargement." Yet later he speaks of the "boggy edematous condition" that is often present in the middle turbinate, and says "While I do not care to promulgate a new theory as to the etiology of hay fever, I have been impressed with the possible relationship of catarrhal sinusitis, particularly ethmoidal and frontal to hay fever" By which he means that hay fever may be the result of sinusitis The relationship does exist, but the hay fever is the cause, not the result, of the sinusitis

A study of many such cases occurring in my practice caused me to realize the truth of these conclusions, and I am sure that a careful study of the histories of the many cases of ethmoiditis and frontal sinusitis occurring in conjunction with hay fever will convince the observing rhinologist of the truth of these assertions The two typical cases briefly described at the end of this paper are reported merely for the purpose of illustration Many more are among my records

WHY ASTHMA PERSISTS AFTER THE END OF THE HAY-FEVER SEASON

As a consequence of the swelling of the middle turbinate body, with or without ethmoiditis, and its possible attendant polypoid condition, reflex asthma develops which lasts as long as these conditions persist, and thus we have the probable explanation of the existence of asthma after the hay-fever season has ended In these cases a cure of the asthma may be effected by a removal of the nasal hypertrophy and exenteration of the ethmoid cells and in such cases the nasal symptoms are benefited, but the original disease (pollinosis) is not cured

CASE 1—Mrs S, aged 29, consulted me June 16, 1911

History—She has had hay fever every autumn for many years When in California she had "rose fever" in May one year Later, she had nasal hay fever symptoms even in winter and had polyps removed eight years ago and at various times since She now has 'hay fever" symptoms the year around with constant discharge and sneezing, the nose stops up easily She has attacks of bronchitis and bronchial asthma also acute attacks of deafness

Examination and Operation—This showed numerous polyps—ethmoidal and sphenoidal Exenteration was performed, the cells were found full of granulation tissue and polyps This resulted in cure of the nose, ear and bronchial symptoms there was no recurrence of the polyps Hay fever symptoms are not so severe and are only present during the hay fever season

CASE 2—Mr J aged 49 consulted me April 20 1911

History—For eleven years he has had hay fever every autumn Each year the disease has been somewhat worse and the symptoms have persisted longer He has had polyps removed nearly every year for the past few years

Examination and Operation—Polyps and other evidences of ethmoiditis were found Ethmoidal and sphenoidal cells were exenterated with resultant cure of the disease There was no recurrence of polyps nor of other symptoms except the hay fever symptoms occurring during the season

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ABSTRACT OF DISCUSSION

DR. H O REIK, Baltimore I particularly emphasize the point Dr Todd makes that, when ethmoiditis is seen in association with hay fever or pollinosis it is always as a concomitant condition or a sequel thereto and never as the cause of hay fever I do not mean to say that hay fever never occurs in a person who has a previously established ethmoiditis, but that if it ever does so happen, that occurrence does not in the least degree tend to prove a causative relationship between the two affections As Dr Todd has well shown, when any relationship does exist it is much more reasonable to assume, and very easy to prove that the sinusitis is a secondary pyogenic infection during or following the long continued inflammatory stage of the hay fever It must not be forgotten either that there are few diseases more carelessly diagnosed than is hay fever Every person who has attacks of frequent sneezing or rhinorrhea is called a hay feverite Now those symptoms may occur at any season of the year and in association with various nasal disturbances for instance with chronic ethmoiditis and have little in common with true hay fever If you will investigate those cases of hay fever alleged to have been cured by ethmoidal or other operations you will find that they were not cases of true hay fever at all The point of the whole thing is that the profession and especially the rhinologists should give this disease more honest thought and consideration and should make a careful study of each case before pronouncing the diagnosis In the next place we should cease this vain search for some gross lesion in the nose on which to blame the attacks and recognize the real cause so completely and thoroughly established by Blackley as long ago as 1873 and definitely proved more recently by Dunbar

DR C L RICHARDS Fall River Mass I do not feel that the general profession is so far in the background as Dr Todd seems to think Most of us have for many years assumed that the nasal lesion was only an aggravating factor and not the real cause of the disease The paper is very interesting and very timely especially as many men may perhaps have not observed the pathology of the condition so thoroughly I do not think we can as yet rule out the neurotic element of the disease

DR W L BALLENGER Chicago All of us are inhaling pollen and yet only a few develop the disease there must be a predisposing factor The pollen is only an exciting cause A neurosis may be a predisposing cause and yet it is true that most neurotic people do not have hay fever so that is not sufficient to stand as a predisposing cause It is something else, and to my mind it is that condition in the nose itself which lowers the vitality of the nasal mucous membrane and the conditions which will do this we know are obstructive lesions which interfere with drainage and ventilation and finally lead to one type or another of ethmoiditis not necessarily the suppurative form but a catarrhal ethmoiditis There is a wide range in the pathology of ethmoiditis In hay fever we are sure that the patient is suffering from one type or another of ethmoiditis Dr Shidel of St Paul advanced the theory that it was due to antrum involvement but to my mind he could more correctly have said ethmoidal although any of the sinuses could constitute a predisposing cause I believe these patients all have some type of ethmoidal [illegible] case either the hyperplastic type with or without polypi or simple infectious ethmoiditis and that this condition produces an irritation and lowers the vitality of the nasal mucous membrane allowing the pollen when it comes in contact with this sensitive membrane to produce the phenomenon of hay fever It does not seem rational to me to say that hay fever causes the ethmoiditis I believe it is predisposing and that the hay fever excites it to still greater activity Therefore I think that Dr Todd is working backward in his investigation and that we must look for our predisposing cause in a pre-existing sinus disease of one type or another and I have repeatedly cured hay fever by removing the ethmoidal [illegible] One lady from Iowa who for many years sat up to help for three months in the year had a radical ethmoidal exenteration, a double Killian and was [illegible] that [illegible] home for years during th [illegible] all [illegible] small pol [illegible] be all [illegible] conv [illegible] the [illegible]

Dr H W Loeb, St Louis I have never cured hay fever by operating on the sinuses Dr Ballenger may say that I have not done a complete operation, but I am sure I have been radical enough in these operations I have had one experience extending over twenty one years with one patient With her hay fever she had severe asthma After operation the asthma cleared up, but the hay fever continued just the same, five years later the asthma returned and I again operated and the asthma again disappeared and the hay fever continued This went on for eleven years Five years ago I operated again, and this time I did as complete an operation as I could, since then the patient has had no asthmatic symptoms but still has hay fever just the same If Dr Ballenger is going to explain the matter of predisposition from a clinical standpoint he has a big task It is better to accept the explanation that has been given us by Dunbar, who has shown that he can produce the disease at will in the susceptible patient, *even in winter, simply by the use of a little of the* toxin in the eye He almost killed himself by injecting a little of the toxin subcutaneously The question probably belongs to the realm of anaphylaxis and the real cause must be looked for along this line I do not often find in my own practice a suppurating sinus with hay fever I find enlargement of the turbinates, and the patients are relieved somewhat of their obstructive symptoms by these operations, but that I am reducing the predisposing cause a single bit in operating I do not believe

Dr C I Welty San Francisco I think it is only now and then that a sinus affection will be a predisposing cause of hay fever In San Francisco I do not believe that we have the typical cases of hay fever, or they are very few Once in a while I get a case from the country I can say this in behalf of the proposition, and I said it six or eight years ago on the same subject *that hay fever is dependent on a pathologic* lesion, malformations or sensitive areas in the nose as the predisposing factor The other day a patient said to me, When I go into the sunlight I begin to *sneeze*" On examination I found hypertrophy of the septum in the middle turbinate region, and hypertrophy of the anterior end of the middle turbinate as well Now it is evident that if this *lesion* is allowed to continue, the patient will sooner or later have the hay fever symptoms In fact, all my patients with so called hay fever have been cured by intranasal operation

Dr I V Laurent, Pittsburgh I believe that Dr Todd's idea is correct that the hay fever causes the ethmoiditis for we see so many cases in which there are no malformations whatever Then too we must recognize the neurotic element Another thing that we do not recognize sufficiently is that at this period of the year these patients catch cold easily and there is an impaired vitality Certainly, in many cases there is no lesion whatever and nothing to operate on

Dr Otto Freer Chicago While hyperplastic ethmoiditis and chronic swelling of the middle turbinate do accompany hay fever it has not been my experience that hay fever is so often based on or connected with these conditions, or that they are especially characteristic of the disease while sinus disease is certainly not a frequent complication of hay fever The principal pathologic change in my experience is chronic intumescence and chronic hyperplasia of the lower turbinated bodies with absence of disease in the ethmoid region beyond hyperesthesia

Dr P M Hickey, Detroit It seems to me that this matter under discussion is largely one of nomenclature We are accustomed to speak of hay fever as a disease in which the patient's symptoms are *sneezing and* rhinorrhea This is giving it too wide a latitude There is no doubt as to the etiology of the pollen of the ragweed, and it has been definitely proved that this is the etiologic factor The individual has an anaphylaxis that renders him intolerant of this pollen I saw 100 students taken in one experiment, and those who had a susceptibility to pollen showed *the lacrimation immediately on* the instillation of a watery solution of the ragweed pollen in the conjunctiva, while others who did not have this susceptibility showed no evidence of any local disturbance Accordingly I think we should reserve the term "hay fever" for those cases that have this anaphylaxis and adopt a different *term, for those who have a rhinitis due to a pathologic condi*tion of the ethmoidal cells

Dr J F Klinedinst, York, Pa I have been a victim of hay fever *from the age of 10 to 40, suffering most severe* asthmatic attacks from July to November every year, and I believe I have cured myself, without having had any ethmoiditis as a sequel I had been treated by several good rhinologists, with the galvanocautery many times, also all nasal obstructions were removed, with only partial relief I had tried many remedies, and finally came to the conclusion that the trouble was due to intestinal toxemia from the use of too much proteid food By reducing my proteid food during the spring and summer seasons and using sodium phosphate twice weekly to flush the bowels, I found that the hay fever was lessening and it eventually gradually disappeared For the local symptoms a spray of quinin hydrochlorid and antipyrin, *each 5 grains to the ounce of water, gave me great relief* With this line of treatment I have cured three patients and relieved many others I think Dr Ballenger is right in that *there must be some predisposing cause I am convinced that* in many patients the predisposing cause is due to intestinal toxemia from too much proteid food or to chronic intestinal stasis The absorption of the toxins, I believe, irritates the nerve centers, or, in their elimination, cause irritation of the various mucous membranes

Dr C I Cott, Buffalo My experience has been similar to Dr Ballenger's I do not believe you will contract hay fever with healthy sinuses The sinus disease is merely a concomitant condition, necessary to produce hay fever I maintain that there is some toxin or some antibody in the blood to cause that, when anaphylaxis is better understood, the question will be explained along that line I expect to see Dr Ballenger's theory substantiated in a few years

Dr Emil Mayer, New York The whole trend of the discussion shows that everybody is right In other words, there are cases entirely due to sinus disease originally, there is a condition in which it is associated with some malformation of the nose and a correction of that relieves the patient, there are others directly due to the pollen, but what about the *man* who gets it when he rides behind horses or in the presence of cats? Then come the patients relieved by the treatment of *intestinal indigestion You are all right, the fact is that it is* a mixed subject There is some unknown neurotic condition which renders certain people susceptible to a particular poison We are *rhinologists of course* and want to blame the nose when we can, but it is not always a factor Some have only a conjunctivitis, others asthma As to Dunbar's experiments, they are *very convincing as far as they go* I had the honor of receiving the first specimen of his toxin before anything was published on the subject He selected a few men in each country and I had a chance to make early experiments I made one very interesting one, a hay fever patient of mine had a drop of the toxin placed in the lower lid while he had *no hay fever*, and for a control I put a drop of the same liquid in the eye of my wife who had never had an attack Both developed conjunctivitis within five minutes and both were relieved by the antitoxin To my mind that showed that the patient had the susceptibility to the disease, and that had my wife been subjected to the opportunity she would have developed hay fever But to return to the question, it is likely that ethmoiditis may follow hay fever *but there are so* many who never develop ethmoiditis independently

Dr. H I Pyfer, Norristown, Pa Five or six years ago I operated on a number of patients suffering from hay fever, in whom were found deviation of the septum and sinus conditions In all these patients there have been decided improvements but no permanent cures Frequently there was present a hyperplastic degeneration of the mucous membrane lining the ethmoidal cells which on inspection showed no apparent disease *Now hay fever patients are told that* operative procedures will relieve but not cure The causes of hay fever can be summed up as first, an unusually sensitive mucous membrane, second, a highly neurotic condition of the individual, and third, an irritant pollen

DR W E SAUER, St Louis The whole question seems to be one of susceptibility Dunbar produced the reaction only in susceptible individuals To say that the hay fever patient has no pathologic nasal lesion is one thing, but to prove it is another There are undoubtedly some pathologic lesions in the nose which are not revealed by our present methods of examination.

DR. F C TODD, Minneapolis I have no particular objection *to the use of the word neurosis, provided it is used to mean* something different from what is usually meant by it but the fact that we do not know what this predisposing cause of hay fever is should not permit the conclusion that it is a neurosis, that is simply falling back on an indefinite term I suggested the name 'pollinosis" (that is, I speak of the disease caused by pollen) to distinguish it from other forms with similar symptoms not due to pollen The disease caused by pollen is the true hay fever and not the condition occurring irrespective of that factor It is this second kind that Dr Pallenger cures I am convinced that what I have taken the liberty of calling 'pollinosis" is not dependent on any nasal malformation That fact, it seems to me, is proved because we can in a susceptible patient, produce the symptoms at any time of the year with the toxin, and it is not necessary to put it into the nose at all, application to the eye will produce the eye symptoms and not *necessarily* the *nasal* symptoms, likewise they can be produced by application to any mucous membrane whether it be the mouth, nose or rectum I should like to have the *profession* acknowledge that the cause is not necessarily a neurosis but pollen and some absolutely unknown predisposing cause It is interesting in this connection to note that statistics show, as you all know, that asthmatic patients rarely develop tuberculosis of the lungs, likewise hay fever patients rarely develop tuberculosis It has also been observed that the eosinophils are increased in hay fever and asthma and not in tuberculosis. This may have a bearing as a causative factor and it is more scientific to so consider than to satisfy ourselves with calling the disease a neurosis We have the further clinical evidence that all of us for years have done multitudes of nasal operations on hay fever patients with failure to cure Hay fever patients will have symptoms at any time of year if they go into a barn where there is hay I am not prepared, however to say that there is not a disease giving rise to similar symptoms caused by the emanations from a horse, the *point I am making is* that these pollen diseases are not caused by a local nasal lesion

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THE ROENTGEN RAY IN OTOLARYNGOLOGY

PRESTON M HICKEY MD

DETROIT

In introducing the subject of the value of roentgenology in otolaryngology, it is fitting to call attention to the great aid which American investigators have rendered in this field While the painstaking work of our brethren across the water, particularly in Germany, has done much to develop the special technic necessary for the best results, I take pleasure in mentioning the work done by many American roentgenologists Our knowledge of the anatomy and pathology of the frontal sinuses has derived much benefit from Roentgen investigation We are able to measure accurately the exact width and extent of these bony caverns, the thickness of the anterior wall, and the distance of the anterior wall from the posterior We can also determine the number and extent of the septa

These anatomic facts are invaluable data in deciding many of the questions which may arise in operative cases

The condition of the anterior wall of the sinus can be demonstrated in lateral plates as shown in three cases in which I was able to diagnose positively the presence of syphilitic necrosis of the anterior wall The worm eaten erosion was absolutely pathognomonic In one case the sinus required to be opened in order to afford relief from the pain but in the other two cases antisyphilitic medication was all that was necessary to afford relief

In the differential diagnosis of the presence or absence of secretion within the sinus it is preferable that the examination be made with the patient in the upright position If the sinus is only partly filled with fluid and the examination is made with the patient lying on his face, the fluid may be distributed in a thin but uniform layer and cause uncertainty in the interpretation of the plate If, however the patient is in the upright position, the plate will tell us if the sinus is entirely or only partially filled with secretion In the examination of doubtful cases the plates can be made at a time of day when from the patient's symptoms we would expect the sinus to be filled or when from the presence of the pain, we would expect that the retained secretion has not drained away

In the last few months the intensifying screen has been used by many Roentgen operators in the investigation of the frontal sinus While this device has the great advantage of shortening the time of exposure converting what was formerly one of the difficult tasks of the roentgenologist into one much easier the utmost care should be exercised in the interpretation of the plates obtained with the intensifying screen Overexposure and the use of a tube of too great penetration will result in obtaining plates of little contrast and in which may be easily lost the slight difference of density on which the diagnosis depends In careful hands however and when experience has been the teacher, the use of the intensifying screen marks a great step for the average operator

The stereoscopic investigation of the frontal sinus has resulted in the production of plates which are of great anatomic interest but which, aside from their demonstration of structure have not yet proved that from the standpoint of diagnosis they possess any considerable advantage The stereoscopic plates of the probe in the frontal sinus are usually striking and determine at once whether or not the canal has been properly catheterized

Aside from being a corroborative aid to transillumination, the value of the Roentgen method in the study of antral diseases lies in the *opportunity which it offers of* differentiating between cases in which the infection has been of nasal and those in which it has been of dental *origin* Carefully *made films of the roots of the* teeth adjacent to the infected antrum will at once tell whether the operative route should be intranasal or whether the area about the diseased root should be attacked It certainly avails little to drain an antrum through the nose if there is a constant source of infection in a diseased root of an adjacent tooth

The presence or absence of ethmoidal disease can often receive much aid in its diagnosis from the x-ray plate If the pathologic condition has converted the ethmoidal cells from a pneumatic condition to one in which the air has been replaced by retained secretion or granulation tissue the plates will afford a graphic diagnosis particularly if the lesion is unilateral so that the diseased side can be compared with the normal

In the investigation of the sphenoidal sinuses we are confronted with technical difficulties due to the fact that the shadows of the sphenoidal sinuses are so superimposed on other bony parts that there result difficulties in the interpretation The shape of the sphenoidal sinus and its details can be shown with comparative ease If we wish to differentiate one sphenoidal sinus from another, we can make oblique exposures so as to avoid superimposing the shadows of the two sinuses one on the other The differential diagnosis between a sinus which is filled with secretion and one which is not, however, still presents great difficulties

It has been suggested that after cocainization of the pharynx, a film as large as can be borne by the patient be placed in the mouth and the ray passed from above and behind so that the shadow of the sinuses will fall on the film The principal ray should pass about 1½ inches anterior to the external auditory canal and should form an angle of 10 degrees with the horizontal plane of the head

In operating on the pituitary body by the intranasal route, it is often of considerable importance to know the distance of the anterior sphenoidal wall from a selected point on the tip of the nose and also the distance of the anterior from the posterior sphenoidal wall I would suggest that this can be accurately measured by having the patient lie on his side, placing a lead marker, as a shot, on the tip of the nose, secured by a small piece of adhesive plaster and making a plate with the target of the *x*-ray tube at a known distance from the plate The distance of the lead marker from the anterior wall of the sinus being measured and the distance of the target from the plate being known the position and exact size of the sphenoidal boundaries can be calculated very accurately

The number of cases of acromegaly which are now being studied makes frequent demands on the roentgenologist for the diagnosis of the condition of the sella turcica and the establishment of the integrity of the anterior and posterior clinoid processes The increasing frequency of these cases renders an accurate study of the sphenoidal sinus of great importance in planning operative procedures

Like the frontal sinus, the anatomy of the mastoid in the living can be studied by means of the Roentgen plate The technic of the oblique exposure as developed by Lange gives the operating otologist a great deal of valuable information The size and position of the lateral sinus can usually be definitely shown as well as the size and extent of the pneumatic cells

In the diagnosis of pathologic conditions of the mastoid, the Roentgen ray offers decided aid in addition to the more classic diagnostic measures The technic, as advanced by Lange, is of the greatest value but often it may be found somewhat difficult to obtain plates of the two sides with the penetration necessary to make decisive comparative study

I would suggest a technic which in my hands has been found to be quite useful It is not advanced, however, with any idea of supplanting the technic perfected by Lange, which affords us data as to the size and shape of the normal and pathologic mastoid My technic affords simply a comparatively easy way by which one mastoid can be compared with its fellow as to the presence of fluid or granulation tissue

The method of examination is as follows The patient lies on his back with the plate under the immobilized head A very small diaphragm is centered over one mastoid with the rays passing slightly obliquely, with the direction slightly toward the occiput An exposure is made in this position on a large plate and then the tube-holder and diaphragm are shifted till they are centered over the opposite mastoid The two resulting exposures are made on the same plate and as the time of exposure is comparatively short it is very easy to get two exposures of about the same density This shows at once whether the tip of the mastoid is filled with air or has undergone pathologic changes

As was stated before, this technic for the investigation of the mastoid is not suggested with any idea that it will replace the lateral exposure, I feel, however, that it may be employed in suitable cases to check or corroborate the plates otherwise obtained

Another use to which the Roentgen ray has been put in the study of otologic conditions is in determining the presence of an internal ear and auditory canal in children with congenital atresia In a case of mine, the ear was deformed and there were no external evidences of the presence of an internal ear or bony canal A plate made with the rays passing through the aural regions, however, so that the shadow of one side did not superimpose on the other, showed that there was a well-formed auditory canal as well as a definite internal ear With such authoritative knowledge the question as to operation can be easily decided

In considering the rôle of roentgenology in otolaryngology, we must remember that we are dealing with a diagnostic agent which should always be considered simply as an adjuvant and one which should not be used to the exclusion of other diagnostic measures I consider it very wrong to hazard diagnoses simply on the plate alone Such misuse of the Roentgen ray will serve in the long run only to cast discredit on its use

In general, it may be stated that the basis for the interpretation of plates of the sinuses rests on the fact that the ray in passing through a bony cavity filled with air gives a contrasting outline which is sufficiently different from that obtained when the air is replaced by secretion or granulation tissue In other words, we can tell if the pneumatic condition of the sinuses is intact The roentgenologist should not be tempted too far beyond this basic fact in his diagnostic ardor

Future study and collaboration between the otolaryngologist and roentgenologist will be followed by still more brilliant results Coordinated team work will be fruitful of great good to the patient

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ABSTRACT OF DISCUSSION

DR SIDNEY LANGE, Cincinnati As a roentgenologist I would not make an attempt to make a diagnosis, but simply report the findings to the otologist and let him draw the conclusions In doing this work constantly I am impressed more and more with the accuracy of this method, and I see every day that there are a certain number of cases that cannot be accurately diagnosed or treated without the aid of an *x* ray plate

There is a type of case I often see in which there is discharge but no pain Here the plate alone may be the deciding factor as to the origin of the discharge In other cases there is pain about the face or head, and the diagnosis may depend entirely on the *x* ray plate

I have been especially interested in the mastoid work I presented a paper before this Section several years ago and was then very conservative, but an experience of several years has given me much more confidence in the method Unfortunately, it requires a large number of cases in order that the method may be accurately employed, by both the roentgenologist and the otologist The otologist must persistently (not occasionally) use the method in order to know how to draw proper conclusions

We are still adhering to the classification I gave to this Section several years ago in regard to mastoid disease, thus the plates may show a distinct mastoid outline, with clear crisp cell walls and clear interspaces, indicating a normal mastoid, first degree mastoiditis as shown on the plate exhibits a haziness of the cells, the cells, instead of being air filled, are fluid filled, but the cell walls are still distinct and crisp, second degree mastoiditis shows softening of cell walls and cells filled with fluid, some of the cells may be destroyed these cases usually require operation Third degree mastoiditis shows loss of structure of the mastoid The chronic cases fall into two groups sclerosis, which may be simple, showing nothing but solid bone, or which may be accompanied by bone defects I have several slides showing hollowing out by cholesteatoma, only the shell of the mastoid remaining

Dr Hickey's original suggestion as to technic is a very valuable and helpful method, because often it is difficult to use this lateral method, especially in young children and in certain types of skulls in which the lie of the land is not favorable to getting the mastoid on the flat His plates are too, perhaps less difficult to interpret by one not familiar with the study of *x* ray plates Having the two mastoids on the same plate makes the diagnosis easier The disadvantage is that his method shows chiefly the tip and gives no evidence of involvement of the antrum or superior part of the mastoid

DR C F WELTY, San Francisco The most important thing I believe (and Dr Hickey does not lay sufficient stress on it) is the relation of the antrum of Highmore to carious teeth that may project into it Instead of taking an *x* ray of the antrum, take an *x* ray of the roots of the teeth and you often get very valuable information Trouble in the antrum can be easily demonstrated by needle puncture The indications for operation in acute cases are so well marked that with the experienced man there is no chance of a mistake, and in a chronic case there is even less chance for making an error It matters little whether the sinus is far forward or far back, if you have a large cell or a small one I made a mistake in a case of furunculosis in which the mastoid was free Possibly if I had studied the case better operation would not have been done, but this is the only condition I know of in which the *x* ray would have been of benefit in making a diagnosis of mastoiditis

DR W W CARTER, New York Not very long ago I saw a patient who had ethmoiditis and involvement of the sphenoid, and there was a question of whether the antrum was serving as a reservoir for the pus The patient objected to having the antrum explored with the needle and preferred to have an *x* ray He was sent to one of the most expert roentgenologists in New York, who made an excellent plate and pronounced both antra to be filled with pus On his recommendation we submitted the patient to radical operation, opened the right antrum and found it absolutely normal, no pus whatever The mucous membrane was not hypertrophied or thickened in any way, and when we found that condition on the right side we did not dare open the other That was a case in which the opacity was caused by thickness of the walls of the antrum I think the question of comparing the two sides is very important, it has been of great assistance to me

DR. J E LOGAN Kansas City Mo The Roentgen ray has proved a great adjuvant to the rhinologist, and is destined to a much wider field of usefulness In three cases of optic neuritis coming under my observation the roentgenologist was able to demonstrate to me an excessive development of cell structure in the posterior portion of the ethmoidal body extending above and external to the sphenoid It is probable that in many cases of optic neuritis we shall be able to find pressure influences exerted on the trunk of the optic nerve by excessive development together with pathologic changes in the posterior ethmoidal cells

DR. WENDELL PHILLIPS New York I have had a considerable number of *x* ray plates made of acute and chronic mastoiditis and have made it a routine procedure in the last two or three months in my service at the Manhattan Eye and Ear to use *x* rays in almost every case of mastoiditis acute and chronic and of all ages It has given me extreme satisfaction and is a very interesting study I deprecate the tendency with many men to place too much reliance on the *x* ray plate to the detriment of our clinical symptoms. I do not employ the *x* ray as a necessity, but as a valuable adjunct

In one *x* ray plate in the Manhattan Eye and Ear Hospital collection the outlines and location of a large accumulation of pus in the lateral sinus is distinctly shown which condition was confirmed at operation. The benefit comes in outlining for the operator the existing anatomic conditions It gives a distinct knowledge regarding location and size of the lateral sinus and shows whether you have a pneumatic mastoid or not A good plate always taking both sides is of great value

DR. OTTO CLOGAN New York I should like to mention one case that of a young girl suffering for years with pain in the supra-orbital region middle turbinate hypertrophy and slight discharge from the middle meatus of the nose I thought it might be a hyperplastic ethmoiditis combined with frontal sinusitis The *x* ray showed darkness over the frontal sinus I did a Killian and found no sinus present It turned out to be supra-orbital neuralgia In another case there was marked swelling both above and below the eye in an old lady pain in the supra-orbital region and pus below the middle turbinate A radiograph showed darkness over the antrum and over the frontal region I operated on the frontal sinus and there was no sinus present The trouble was in the antrum exclusively Thus in some cases in which the *x* ray picture shows darkness there may be no sinus present

DR MAX GOLDSTEIN St Louis Negative *x* ray findings may often be of considerable importance As a factor in examination negative *x* ray findings may be as essential as negative results in the examination of tuberculous sputum The finding of the tubercle bacillus is positive evidence of tuberculosis the absence of the tubercle bacillus in the examined specimen of sputum however does not necessarily justify the conclusion that there is no tuberculosis The same relative condition obtains as far as radiograms are concerned If we have a definite shadow outline or other tangible landmarks in radiographs we may infer the presence of pus or other fluid granulations anomalous anatomic relations etc a negative *x* ray picture in my opinion however does not exclude the possibility of an existing pathologic condition

DR C F COTT Buffalo I had an experience lately which would demonstrate the importance of the *x* ray A girl 13 years of age had a swollen jaw Her physician found that she was blind in one eye I was called in had her taken to the hospital opened the antrum and found a quantity of pus I intended to open the frontal sinus also although not having an *x* ray picture at the time I worked away until I felt that I was near the danger point and stopped The child recovered in a few weeks and we then had an *x* ray picture made We found that she had no frontal sinuses In that case it would have been very valuable to have had an *x* ray picture taken before the operation but it was very necessary to act quickly

DR B R SHURLY Detroit I have a case in mind which showed that this modern method offered us something that was absolutely unknown heretofore as a method of differentiation in some of our more difficult cases of frontal sinus disease This patient was suffering from necrosis of the anterior wall of the frontal sinus which gave by ordinary methods of diagnosis absolutely no indication whatever of the trouble On examination with the *x* ray we were able to make a diagnosis of necrosis of the wall although the history was absolutely negative A radical operation gave immediate relief The mapping out of the frontal sinus before operation is an exceedingly valuable aid and this applies of course to the sinus in the mastoid outline which we can so readily obtain by this *x* ray method

DR P M HICKEY Detroit We are dealing with one of the newer aids to diagnosis Not everything is yet known about it and undoubtedly many wrong interpretations have been made and will continue to be made though we hope these will become fewer and fewer It seems to me that the method under discussion is one which can extend more into the field of otolaryngology for the benefit of the patient and that the accuracy of the method depends on the correct interpretation of the plates We are perhaps too apt to think that when the plates have been taken the rest [illegible] I think that the whole field of value is in the interpretation of the plate One can train [illegible] that it is a simple matter of technic but the [illegible] of proper conclusions from them is the [illegible]

THE OPERATIVE TREATMENT OF BRAIN ABSCESS OF OTITIC ORIGIN

JAMES F McKERNON, M D
NEW YORK

In dealing with the subject assigned to me in this symposium I shall detail the methods used by me in operating on and treating brain abscess complicating purulent middle ear disease

As most of the abscesses the otologist sees occur after a mastoid or middle ear operation has been done, this type will be discussed first

When a brain abscess is suspected following one or both of the above conditions and we find a stalk—"the pathway of infection"—leading from the tympanic cavity, aditus or roof of the mastoid antrum, it becomes a comparatively easy task to localize the pus collection by tracing the so called stalk up to the abscess cavity, by director, knife or long narrow forceps, and when the pus is encountered, enlarging the original pathway of infection by cutting down on it from its dural entrance to the abscess cavity and wiping the cavity gently with sterile strips of gauze soaked in a warm normal salt solution The introduction of a drainage tube at the lowest point of the abscess cavity and the application of a soft gauze dressing is about all that is usually necessary

When, however, we suspect an abscess and there is no visible pathway of infection present leading from any of the above locations, the procedure is not so simple

When the abscess is suspected in the temporosphenoidal lobe, a sufficiently large button of bone should be removed over the roof of the aditus, or overlapping both the adital roof and a portion of the tegmen antri to enable one to explore with ease the entire temporosphenoidal region The otologist, in the past, has been criticized, and justly, by the general surgeon for making these openings too small to admit of thorough and satisfactory exploration

The dura is incised in the horizontal plane and fine silk sutures are introduced through its edges The sutures can be used during the brain exploration as retractors, by gently drawing on them above and below, thereby exposing sufficiently the cerebral substance, and should the exploration prove negative, the dural edges can be approximated and sutured by the silk already in position, thereby preventing a hernia of the cerebral substance

METHOD OF EXPLORATION

For exploring the brain substance itself, it has been my custom to use a long slender bladed knife, introducing it at first forward, downward and inward for about 1 inch, provided pus is not encountered before, in the region of the tegmen tympani Should the exploration be negative, the knife is then introduced directly upward and inward for about 1 inch, the introduction being directly through the same opening as that already made Should this again prove negative, a third exploration can be made in the same manner and depth, backward, downward and inward Should these three locations prove negative, others can be made in various directions, always starting from the original opening in the brain first I have made as many as twelve explorations of the temporosphenoidal lobe through such an opening with a slender bladed knife in a search for a brain abscess, which proved negative, and closed the dural flaps in the manner described, with but little or no discomfort to the patient

Should an abscess cavity be encountered by the knife, it should be left in position and a long narrow bladed forceps passed gently along the knife blade until it reaches a little beyond the point of the knife, which can be easily determined by the tactile sense The forceps blades can then be gently separated and either the encephaloscope passed between them or a pair of long flat metal retractors I am inclined to use the retractors rather than the encephaloscope at this stage, because less pressure is exerted on the brain tissue The cavity should be wiped out as gently and quickly as possible with gauze moistened with a warm saline solution

It is not necessary to remove every visible evidence of pus with the gauze, for too frequent or active manipulations are detrimental to the best interests of the patient, on account of the danger of opening up new avenues for further brain infection *It is my belief that many so-called multiple and secondary brain abscesses are produced by too energetic endeavors to remove the primary pus collections, thereby injuring the adjacent brain tissue and allowing new foci to form*

DRAINAGE

This is a most important adjunct in the treatment of brain abscesses If the abscess be one of long standing with a limiting membranous wall, a large rubber drainage tube should be introduced, as the mechanical pressure produced by the tube on the limiting membranous wall hastens resolution If there be no limiting membrane present and the abscess be of the acute type, then I believe that drainage is better conserved by using a moderate-sized cigarette drain, than by using rubber tubing In either case, the upper end of the drain *should not be placed flush with the cerebral substance*, or against the limiting membrane when present, but a small space should intervene to allow for a collapse of the brain substance

DRESSING

Quantities of soft fluffy gauze should be placed around the distal end of the drain and a loose bandage applied

Subsequent dressings should not be too frequent—once in three or four days—as too frequent inspection and manipulation delay resolution At each dressing, the tube or drain should be gently drawn out for a fraction of an inch and cut off For subsequent inspection of the cavity the encephaloscope is helpful as it allows one to see the condition of the walls and the removal of detritus and discharge is easily accomplished Long slender metal retractors can, however, be used to advantage

A slow, gradual or sudden rise of temperature, or a change in the mentality of the patient is indicative of obstruction to the drainage, and when this occurs the cavity should always be inspected in an effort to discover the obstruction, or the development of adjacent foci An unfavorable postoperative temperature or a marked change in the mental condition of the patient may also be caused by the onset of a meningitis or encephalitis The position of the patients after operation is of importance They should be made to lie on the affected side, as much as possible, for the first few days following operation and later the head should be elevated to promote drainage

SUSPECTED BRAIN ABSCESSES

In suspected brain abscesses, when the symptoms are not urgent enough to call for an immediate operation, the technic for opening the abscess, as advised by

Ballance, has met with excellent results. It consists briefly in making a free exposure of the dura, incising it and separating the flaps sufficiently for exploratory purposes, applying a dressing and waiting for from twenty-four to forty-eight hours. This relieves any urgent pressure symptoms, and if pus be present and under any considerable pressure it will take the line of least resistance which is toward the dural opening and can be reached more easily and surely when the brain tissue is incised. It has another advantage, and to me it would seem a most important one, that of minimizing the occurrence of a secondary meningitis by allowing the severed edges of the dura to become plastically sealed, thereby shutting off the possibility of absorption as would be probable when pus came in contact with the freshly severed edges of the dura. At the end of from twenty-four to forty-eight hours after this modified decompression has been done, a knife is introduced into the brain substance after the manner above described and the pus, if present, evacuated. To me, this procedure seems rational and practical especially if the case be not an urgent one. That secondary meningitis is often the fatal outcome of these cases there can be no question, and anything that will diminish its frequency will be welcomed by the surgeon.

CEREBELLAR ABSCESS

Abscesses of the cerebellum are evacuated almost always posterior to the descending limb of the sigmoid sinus. The technic for this exposure and exploration is largely the same as that discussed for temporosphenoidal abscess. One point of special importance should be borne in mind in evacuating and draining abscesses in this region and that is that the opening in the cerebellum should be sufficiently low down to admit of free drainage. Frequently after an abscess has been opened in this region, the site of which has been in the upper and lateral structure of the lobe, the surgeon has completed his operation without sufficient drainage from below, overlooking the mechanical fact that the cavity in order to drain must first fill up from the bottom to a level with the drainage inserted above.

When one enters the brain for an exploration of abscess, without the middle ear or mastoid having first been surgically attacked, the site of election may be over any point of the temporosphenoidal lobe or cerebellum. The technic for the dural exposure and brain exploration is the same as that already discussed.

CONCLUSIONS

In acute and emergency cases operate early, doing the entire operation at one sitting.

In subacute cases and those cases not urgent, the modified decompression operation with a wait of from twenty-four to forty-eight hours after the dural incision before exploring the brain, conserves the best interest of the patient and minimizes the development of secondary meningitis.

A large opening in the skull is essential. If at point of election and a negative result is obtained the bone button can be replaced. Dural sutures aid materially as flap retractors and should the exploration be negative the brain substance can be covered and protected by tying the sutures. If pus is encountered removal of the sutures follows.

The knife only is to be used for incising brain tissue, avoid finger manipulation and trauma to surrounding substance. Wipe the cavity gently; no irrigation should be used unless in a chronic abscess cavity with distinct and dense limiting membranous wall. The size of drainage tube should be governed by the extent of the cavity; the material used is rubber tubing in the chronic variety and cigarette drain in the acute type.

Rise of temperature or change in mentality of the patient calls for an immediate inspection of the cavity with search for obstructed drainage or development of additional foci.

Rapidity in operation is essential to success, and above all frequent manipulation of brain substance should be avoided.

62 West Sixty-Second Street.

DIAGNOSIS AND LOCALIZATION OF BRAIN ABSCESS*

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PHILADELPHIA

DIAGNOSIS

The diagnosis of brain abscess I need hardly say is often extremely difficult. We are confronted at the outset in the average case with a compound of symptoms pointing, in part, to some extracranial surgical condition, such as disease of the middle ear, and in part to a lesion within the cranium. That the symptoms of the latter are often extremely vague and indefinite, even when subsequent autopsy reveals gross lesions of the brain, of its membranes or sinuses, every one who has had practical experience in this field will admit. Evidently in a suspected case of brain abscess the first step must always be the search for symptoms indicative of actual intracranial lesion. We will suppose, for instance, that an examination of an ear has clearly established the existence of an infection or that the condition of the ear and the medical history justify the inference of the existence of such an infection in the past. We must remember that brain abscess often presents a latent period extending over many months and years, so that the condition of the ear which originally gave rise to an abscess may have completely and long ago subsided at the time that the abscess makes itself manifest; but we will suppose that positive evidence of an otitis past or present has been established and that at the time the patient comes under observation certain other symptoms—certain new symptoms—have made their appearance—symptoms now suggestive of intracranial lesion. What are these symptoms? Frequently we are told that the patient, who had been previously well—at least in whom nothing unusual had been observed—began to suffer suddenly from headache and vomiting. Less frequently do we find that these symptoms, particularly the headache, have supervened gradually; most frequently we are confronted by symptoms suggestive of a pathologic condition that is acute or has suddenly become active. When we talk with the patient we are also impressed by the fact that he is somewhat dull, heavy and apathetic, sometimes markedly so, and we may therefore say that in addition to the headache and vomiting, hebetude in some degree is also present.

That the symptoms of headache, vomiting and lassitude may be but slightly pronounced and notwithstanding serious brain mischief exist is well established. In estimating the value of these symptoms, even when slight, we must bear in mind the fact that brain abscess is often quiescent and latent for many years As is well known, a brain abscess, the symptoms of which become manifest in adult life, may have had its inception in an ear disease of childhood If the abscess be well encapsulated, the brain becomes singularly tolerant of its presence and it would appear that it is only when some untoward incident arises — usually something so slight as to escape notice — or at times without traceable incident of any kind that active symptoms manifest themselves

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* [illegible]

Granting that headache, vomiting and hebetude make their appearance, these symptoms of themselves do not justify the diagnosis of intracranial disease Every otologist will, I think, bear witness to the fact that these symptoms may be encountered in cases of acute and uncomplicated otitis media or in cases of chronic otitis with exacerbations and pus retention At least these symptoms have been known time and again to disappear after paracentesis or other radical operation The question arises, are there other symptoms added to the triad we have mentioned, the presence of which will permit a definite conclusion? Certainly the presence of dizziness will not help us, and this is true also of the presence of fever How as to the presence of optic neuritis? While optic neuritis usually justifies the inference of intracranial involvement, it apparently does not always do so † At least this is the experience of several observers, among them Jansen and Roughton This, however, is so unusual that it becomes significant only when the optic neuritis disappears after operation limited to the ear If, on the other hand, an optic neuritis persists after such an operation, the inference becomes unavoidable that the optic neuritis indicates an intracranial involvement I am inclined to believe that the occurrence of optic neuritis always indicates an intracranial involvement, though that involvement may be slight in degree Certainly the fact that such a symptom may subside after an operation limited to the ear and in which neither the cranial cavity nor the membranes are invaded by the surgeon, does not justify the inference that no intracranial involvement was present Similar is it with regard to other symptoms which have been known to disappear after purely aural operations, among these may be mentioned palsy of the sixth nerve, inequality of the pupils, diplopia and ptosis Here we are again warranted in inferring that the drainage and revulsion resulting from the operation are really accountable for the disappearance of the symptoms Ordinarily such symptoms may be accepted at their face value, namely, as indicating intracranial involvement It should be added that neuroretinitis, if associated with other symptoms, may also be significant It has been repeatedly observed Potts,[1] indeed, regards it as one of the cardinal symptoms of brain abscess

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Having completed the first step of the diagnosis, namely, that of intracranial involvement it next becomes necessary to determine the nature of the involvement Here we are obliged to differentiate between the following conditions first, external purulent pachymeningitis, i e, supradural abscess, second, thrombosis of the lateral and other sinuses, third, purulent meningitis limited or diffuse, fourth, purulent meningo encephalitis, fifth, non-suppurative localized encephalitis, sixth, serous meningitis, seventh, brain abscess

Supradural abscess — external purulent pachymeningitis — is beyond all doubt the most frequent intracranial complication of otitis While it may simulate brain abscess, we should bear in mind that it does not present the focal symptoms frequently present in the latter, while there are often present pain on pressure back of the mastoid, often swelling in this region as well as a tendency to hold the head in a fixed position Finally, the fact of extradural involvement becomes in many cases apparent in the course of a radical or exploratory operation

The consideration of thrombosis of the lateral and other sinuses would take us too far afield Suffice it to say that involvement of the lateral sinus is especially indicated by venous fulness and edema back of the ear in the mastoid and occipital regions In addition, there is a decided tenderness over the edematous area, especially over the mastoid foramen Again the external jugular vein on the affected side is less full than its fellow, the difference becoming especially evident on efforts at inspiration Occasionally, the thrombosis extending into the internal jugular vein, the latter may be felt as a firm and painful cord In short, there are local symptoms present which are not met with in uncomplicated brain abscess

Purulent meningitis is differentiated with greater difficulty If the meningitis is diffuse, however the symptoms are of such a character as to make the differentiation comparatively simple We need only think of the retraction of the head and neck, the involvement of cranial nerves on both sides and the numerous other symptoms present in such a case It is only when the meningitis is limited or circumscribed that the differentiation becomes difficult It is usually impossible to say whether a brain abscess is or is not complicated by a local meningitis In doubtful cases we may resort to lumbar puncture, but unless the meningitis be in a degree at least diffuse, no information may be gained In a diffuse purulent meningitis the fluid obtained is rich in cells and bacteria, but a slight cloudiness of the fluid and the presence of some bacteria do not justify the diagnosis of a meningitis save, perhaps, such as may result from the abscess impinging or encroaching on a limit[illegible]ection
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† See also Risley Jour Nerv and Ment Dis Jan [illegible] 1900

[1] Potts Am Jour Med Sc [illegible]

tions to ear disease are, however, generally less direct and clear As Oppenheim points out, it more frequently involves the frontal and central regions and corresponding symptoms make their appearance It may, however, involve a temporal lobe and in such instance, especially if it occurs on the left side, it may simulate brain abscess in this region

The differential diagnosis of abscess from serous meningitis is of considerable importance because serous meningitis may itself result from otitis The symptoms of serous meningitis are those of a diffuse involvement while optic neuritis is usually an early and a pronounced symptom The symptoms are relatively mild both as regards the temperature and as regards the physical signs, of course, weakness of the extremities, involvement of cranial nerves and other local symptoms may be present, but they are not so clearly marked as in other forms of meningitis

Having briefly passed in review the various conditions other than brain abscess, let us now give our attention in detail to the latter affection A brain abscess may, as we know, run its course in a few hours or days, this it does very exceptionally On the other hand, it may endure for many years It may complicate the picture of an acute disease of the middle ear or of an exacerbation of a previously existing disease of this organ In such case the symptoms added to those of the ear affection may be of such a character as to raise little more than a suspicion of intracranial mischief Thus there may be fever, headache, vomiting and hebetude, all symptoms which, as we have seen, may be present in disease limited entirely to the ear Frequently, indeed, the symptoms are such as not to raise the suspicion of intracranial involvement, thus the acute symptoms both of the ear and of possible brain involvement may subside, and the abscess, if really established, passes into a latent stage Sometimes we will, in a suspected case, learn that during such a supposed latent period the patient has at times complained of headache, but that this headache was not regarded seriously, sometimes that slight and evanescent fever was present, to which likewise no special attention was given It may be, again, that the patient is observed to be in ill health, that he has lost weight and strength, that he has become apathetic, slightly depressed, a little slow mentally or even slightly confused As a rule, however, symptoms are entirely absent during the latent period It appears that the abscess becomes encapsulated at an early stage and thus quiescent How tolerant the brain may become to an encapsulated abscess, even when the latter is very large, many can testify

There is one point, however, which it is especially important to bear in mind, and that is that if in a case of disease of the ear — whether the latter be still active or whether it has apparently terminated in recovery — convulsions make their appearance, the suspicion of otitic brain disease should at once be aroused The convulsions may resemble ordinary epilepsy or they may depart from the typical symptoms of the latter Thus loss of consciousness may not be complete, or during the seizure rigidity of the muscles rather than clonic movements may be noted, indeed, because of these features hysteria has now and then been diagnosticated in cases in which the patient in reality suffered from brain abscess If in a case of ear disease, therefore, convulsions supervene, the case should be submitted to elaborate study

We will suppose that in a given case the latent period has terminated and that from some undetermined cause the brain abscess has become active, what are the symptoms?

1 Headache, sometimes slight, sometimes intense in degree Sometimes it is diffuse, at times, referred to a site corresponding to the abscess Very rarely, it is referred to a distant region, e g, to the opposite side of the head Sometimes percussion of the skull increases it or evokes it if absent Rarely local tenderness is elicited As a rule the headache is made worse by vomiting or by muscular effort

2 Vomiting This is quite common but may be but slightly pronounced It is especially frequent in cerebellar abscess

3 Dizziness Though present at times dizziness is much less frequent than headache or vomiting When pronounced or when present in the form of a well defined vertigo, it should be carefully investigated

4 Hebetude The mental state is seldom entirely normal Usually there is present a certain degree of slowness of thought and of apprehension, at times of apathy and depression The mental symptoms may be very slight or may be so pronounced as to amount to stupor. Very pronounced mental symptoms are, however, usually present only in the terminal stages In some cases there are present restlessness, irritability, confusion or delirium

5 Fever This, as is well known, may be entirely wanting In fact, the temperature may be subnormal, indeed, this appears to occur in about one-third of the cases Special stress has been laid on this fact by Macewen There is never a high temperature in uncomplicated cases When temperature is noted it is usually moderate in degree and may be present only toward the evenings It is not improbable that when fever is present in a degree, the abscess has impinged on the meninges or that possibly other complications are present Certainly high fever occurs only when the abscess has actually opened into the meninges or, perhaps, into the ventricles That rigors may be noted under such circumstances goes without saying

6 Optic neuritis and choked disk Optic neuritis is not nearly so frequent in brain abscess as in brain tumor Oppenheim and Cassirer have estimated that changes occur in the papilla in about 53 per cent of the cases We must make a distinction, however, between optic neuritis and choked disk, the one apparently result from the toxicity of the abscess, the other from the increased intracranial pressure Their relative frequency is well indicated by Okada (quoted by Lewandowsky), who found in ninety six cases of cerebellar abscess optic neuritis in twenty two and choked disk in only seven It is important, also, to bear in mind that, more frequently than in tumor, the optic neuritis is limited to one side, usually on the same side as the abscess, though sometimes on the opposite side

While brain abscess, like brain tumor may be attended by the symptoms of increased intracranial pressure it is not improbable as Lewandowsky points out that the general symptoms of brain abscess are in part at least dependent on the action of the toxic substances of the brain abscess Not only is it probable that the psychic symptoms are due to such an intoxication but even at times also the headache and vomiting, certainly it is the most plausible explanation of the presence of optic neuritis which, as we have just seen, is far more frequent than choked disk

If we attempt to summarize the more important symptoms pointing to a brain abscess, i. e., an abscess that has entered on an active stage, we may enumerate them briefly as follows: headache, vomiting, dizziness, hebetude, subnormal temperature or moderate fever, optic neuritis, neuroretinitis, choked disk. These symptoms have additional significance if an examination of the cerebrospinal fluid proves negative. Should a blood examination reveal a high leukocytosis, this is of course also of value.

LOCALIZATION

The important differentiation in otitic abscess is of course between temporal and cerebellar involvement. To begin, symptoms pointing to such differentiation may be entirely absent. A circumscribed abscess may exist in any portion of the brain without evolving localizing symptoms, so tolerant may the brain become to its presence especially during the period of latency. In the majority of cases, however, symptoms are present, though they are often exceedingly slight. They necessarily depend on the extent of the abscess and the degree of involvement of structures producing definite reactions.

In involvement of the temporal lobe, the abscess is mainly, though of course not always, basal. Time and again because of the basal situation, cases are encountered in which no very definite localizing symptoms are present. If the abscess be sufficiently extensive and deep, however, it may by pressure on or involvement of the basal ganglia or internal capsule give rise to weakness of the arm and leg of the opposite side, frequently associated with spasms or convulsions. Hemianesthesia and at times hemihypalgesia of the opposite side have been noted, sometimes conjugate deviation of the head and eyes, sometimes hemianopsia. All of these symptoms may be wanting, however, and yet temporal abscess be present and extensive.

When the abscess involves the left temporal lobe, and provided that it be sufficiently extensive, sensory aphasic symptoms may be present. These symptoms may be very slight, but if present in any degree are significant. Thus a certain amount of word deafness may be noted, in some cases merely a moderate difficulty in understanding what is said. The involvement of the superior temporal convolution or of its subjacent white matter may be very slight but there may be present a partial amnesic aphasia or possibly a paraphasia, at times also an inability to name objects, as in a case reported by Macewen.[3] The speech involvement may not be clearly defined or pronounced, though it may be obviously present. Other speech defects, such as alexia and agraphia, have also been noted though infrequently.

In abscess of the right temporal lobe, aphasic symptoms are absent, though, it would appear, not invariably so. Sometimes the absence of definite symptoms in right temporal abscess is very pronounced. In a case described by Levy[4] the diagnosis of sinus thrombosis had been formed and yet the autopsy revealed a right temporal abscess while the sinus showed no involvement.

Cranial nerve involvement may also be noted in temporal abscess, especially is this true of the oculomotor nerve. Not infrequently there is ptosis, less frequently, also, dilated pupil or external strabismus. Sometimes there is involvement of the sixth nerve. Exophthalmos also has been noted.

Anosmia, homolateral, has been repeatedly observed in temporal abscess. In a case reported by Raimist,[5] it was clearly in relation with the abscess.

In cerebellar abscess vomiting is apt to be more marked than in temporal abscess and there may be rigidity of the muscles of the back of the neck or a tendency to hold the head in a fixed position. The headache is usually occipital, but it may be frontal, as in the case reported by Sieur.[6] Typical symptoms of interference with the vermiform process are most frequently entirely wanting, owing doubtless to the fact that the abscess is almost always limited to the lateral lobe, curiously enough, too, in cases in which the vermiform process has been involved, such symptoms have occasionally likewise been wanting. If present, the symptoms are rarely marked. Cerebellar ataxia, which may be one-sided, has been noted, however. Of late years Babinski has called attention to a number of symptoms which may be present when the cerebellum is diseased. These symptoms are exceedingly important and should be sought for, I believe, also in suspected cerebellar abscess. Among these is asynergia. This may be demonstrated in various ways, thus the patient when walking allows his body to remain to some extent behind the legs, that is, the trunk is thrown backward and in progression seems to be retarded.

Further, if the patient being seated, makes an attempt to rise without the assistance of his arms, the trunk and the thighs become flexed, the legs becoming extended. Lastly, and perhaps most important, if the patient attempts to touch an object with his foot, the movements do not occur simultaneously in the knee- and hip-joints, but follow in sequence, first in one joint and then in the other. The symptom, when it is limited to one side of the body, is termed hemiasynergia and is homolateral, i. e., exists on the same side as the lesion.

Babinski has also noted in cerebellar disease an inability on the part of the patient to follow one group of muscle innervation rapidly or normally by another, for instance, he finds that the patient is unable to change quickly from pronation of the hand and forearm to supination. Like the hemiasynergia it is a homolateral symptom. He has given it the rather unfortunate name of adiadochokinesis. Finally, sometimes in cerebellar abscess we note a tendency of the patient to turn or to fall to one side in walking, the tendency is most frequently to turn or fall to the opposite side, though sometimes to the same side.

Incoordination is occasionally also encountered both in temporal and in frontal abscess, but it is not improbable that the symptoms more especially brought to light by Babinski will in the future aid us in making the differentiation. The symptoms, it should be remembered, are of value if they are clearly marked and present early.

The presence of dizziness or vertigo in a given case always merits serious consideration. The symptom is frequently very difficult of interpretation. To begin with, however, it may be stated that if it be merely subjective, i. e., does not betray itself by any outward manifestation and be variable and inconstant, it may be disregarded. Under such circumstances it can have no localizing value. If pronounced, it may suggest disease of the labyrinth, involvement of the vestibular nerve or possibly disease of the nucleus of origin of the latter.‡

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[3] Macewen: Lancet, London, 1910, i, 1533.

[4] Levy: Deutsch. med. Wchnschr., 1909, No. 8, p. 340.

[5] Raimist: Arch. f. Psychiat., 1909, xlvi, 127.

[6] Sieur: Arch. internat. de Laryng., 1910.

‡ See also Bárány: Handbuch der Neurologie, i, 941.

Similar is it with nystagmus. Nystagmus also must be pronounced and indubitable to have value; we must remember, first, that nystagmus has been observed in temporal lobe cases and no doubt at times is to be ascribed to labyrinthine involvement, itself the result of the infection of the ear. The differential diagnosis between a nystagmus and vertigo due to disease of the labyrinth and of the same symptoms due to brain lesion is exceedingly difficult, indeed, often impossible. Surgically it would probably be of little value, for an exploratory operation would hardly be limited to the ear.

Choked disk may have the same significance as in cerebellar tumor, namely, it may be pronounced and attended by early loss of vision, though, as already pointed out, it is much less frequent than in tumor. Occasionally in given cases, also a hint as to the location of the abscess in the posterior cranial fossa is given by the presence of symptoms pointing to involvement of the pons or medulla.

Diminution of the corneal reflex is of course a symptom which, it should be added, is not infrequently observed in cerebellar abscess.

Pressure on the pons, the quadrigeminal bodies, the medulla and on the cranial nerves may produce special symptoms, among them, eye palsies, nystagmus, paresis of the facial nerve, dysarthria, pain and hypesthesia in the trigeminal distribution and disturbances of the respiration. At times, also, hemiparesis is present in cerebellar abscess. Occasionally pressure on the crossed pyramidal tract may give rise to spastic phenomena plus knee-jerks, ankle-clonus, Babinski sign, etc. In a few cases, Macewen and Mueller have noted absence of the knee-jerks.

Statistics as regards the frequency of cerebellar and temporal abscesses give us but little aid in the study of individual cases. Those of Heiman,[9] however, which are well known, are exceedingly interesting. Heiman collected reports of 819 cases, of which he found 645 adapted to statistical study. In these cases, abscess was found 456 times in the cerebrum, 188 times in the cerebellum and once in the pons. Cerebellar and cerebral abscesses occur most frequently in the third decade of life. Otitic brain abscess occurs two or three times more frequently in the male sex than in the female sex. Cerebral abscess, as we have seen, is from two to three times more frequent than cerebellar abscess. It cannot be said that either of the two hemispheres of the cerebellum or cerebrum is more inclined to abscess than the other.

When we pass in review the various difficulties which enter into the diagnosis of cerebral abscess, it would seem justifiable to make use, at least in doubtful cases, of surgical exploration. The surgical procedures should, when all is said and done, in my judgment, follow largely surgical indications. The surgical indications are determined, in part, by a study of the diseased ear and, in part, by the conditions revealed in the successive steps of the operation. As a matter of necessity, it would seem that every operation must be, in part at least, exploratory.

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[9] Heiman: Arch. f. Ohrenheilk., 1906, lxvii, 1.

Cost of Alcohol.—Alcoholic beverages for which over $2,000,000,000 are spent yearly in the United States cause over one-tenth of the deaths.—B. C. Keister before the Medical Society of Virginia.

DISEASES OF THE EAR WHICH LEAD TO BRAIN ABSCESS

MAX A. GOLDSTEIN, M.D.
ST. LOUIS

In every important pathologic cycle there is a focal point from which the disease process emanates and radiates. There is no small individual cavity in the human body which occupies so distinctly vital a position in its relations to surrounding areas as does the cavum tympanum. A brief study of its anatomic relations will definitely reveal the close interrelation which exists between the cavum tympanum and its many accessory areas, viz., the eustachian tube, the mastoid antrum, the lateral sinus, the carotid canal, the labyrinth and the temporosphenoidal fossa.

The irregularly shaped cavity of the middle ear is located in a comparatively inaccessible place in the depth of the temporal bone, surrounded on all sides by delicate and vital structures. It offers a favorable site for fluid contents and an ideal incubator for the many forms of bacteria which so frequently find lodgment there. It is most vulnerable, of course, by way of the eustachian tube.

Infective and suppurative processes of the middle ear cavity *via* the nasopharynx and eustachian tube route are variously estimated at from 80 to 90 per cent. of all suppurative middle-ear diseases. Anatomically, the tympanic cavity and the adjacent cellular bone areas of the mastoid may be regarded as an accessory space to the upper respiratory tract. The invasion of the tympanic cavity through the eustachian tube, following an infection or suppurative process of the nose, nasopharynx or buccal cavity is as frequent as is the invasion of the accessory sinuses of the nose through their natural ducts and ostia. When we add to this the histologic data of continuity of surface of the mucous membrane we can readily appreciate the enormous percentage of secondary infections of the tympanic cavity from infected foci in the upper respiratory tract and the frequency with which these pathologic conditions occur.

Mechanical forces may also be considered as factors in the production of suppurative processes in the middle ear cavity. The short and straight eustachian tube in the child is readily conceded to be one of the important causes for the frequency of middle-ear infections in childhood; the contiguity of the mucous membrane lining the nasopharynx, eustachian tube and cavum tympanum is also a vital feature in the frequency with which middle-ear diseases occur as sequelae following the anginas and acute infectious inroads of the mucosa in the exanthemas. The use of nasal douches, violent blowing of the nose and even the ordinary physiologic acts of sneezing, coughing and deglutition are frequently aids to the forcing of infectious material through the eustachian tube into the cavum tympanum.

In summing up the various factors which contribute to invasions by pathogenic microorganisms of the cavum tympanum we must not fail to mention the lymphatic and vascular connections between the nasopharyngeal areas and the lymphatic ring of Waldeyer with the cavum tympanum.

Conceding the many points of vulnerability to bacterial invasion of the tympanic cavity from the upper respiratory tract our next step is to trace the further development of the [illegible] which find their [illegible]

Suppurative otitis media is simply a generic classification of the many varieties of pus-producers which may invade the middle ear cavity. On the virulence or activity of the specific coccus or bacillus responsible for this suppurative process will depend the frequency, severity and rapidity of extension of such an active destructive process into the surrounding vital intracranial tissue.

The shape and small capacity of the cavum tympanum admits of but a small quantity of fluid contents, as scarcely eight or ten drops of fluid will completely fill it. As serous exudates and pus accumulation are sometimes developed in a few hours with astounding volume, a fluid or semifluid accumulation in the middle ear cavity must find a natural vent. The only two normal connecting areas with the cavum tympanum are the eustachian tube and the aditus ad antrum.

In active and acute infections in which pus has found its way into the middle ear cavity *via* the eustachian tube, its drainage by this natural channel into the nasopharynx is usually cut off because of the swollen and inflamed character of the mucosa lining the tube and consequently blocking its lumen. As the fluid contents of the middle ear cavity increase in quantity, the only other natural avenue of escape is by welling up into the attic and through the aditus into the mastoid antrum and its surrounding honeycomb of cells. If the mucosa that lines the tympanic cavity, the aditus and adjacent areas of the antrum and mastoid cells is also swollen similarly to that of the eustachian tube, it may offer a considerable resistance to the escape of pus or other pathologic fluid into the antrum and another exit for the accumulated fluid contents must be mechanically found. This usually proves to be the *locus minoris resistentiae* in the membrana tympani which bulges intensely outward by the increasing pressure of the fluid behind it, and if not relieved by the surgeon's knife, forces an opening in the membrana by which the fluid contents of the tympanic cavity can drain into the external auditory canal.

Let us assume in another instance that the pathologic pus producing focus in the middle ear cavity is due to a *Streptococcus pyogenes* or bacillus of influenza, that the two natural avenues of fluid escape (the eustachian tube and the aditus ad antrum) are eventually blocked because of the intense plastic exudate and swelling of the mucosa and that the membrana tympani is unusually resisting and strong in structure, and what would be the result?

Another of the vulnerable areas is now attacked, the tegmen tympani. Anatomists and pathologists have often marveled at the fact that the temporosphenoidal cranial fossa is guarded from invasion, injury and infection that may reach it from the cavum tympanum by so thin and delicate a bone partition as is the tegmen tympani. In the early development of the temporal bone, dehiscences and imperfections in the surface of this thin bone-plate are often found which are retained through life and it is very natural that infectious processes should thus rapidly find their way from the cavum tympanum through the tegmen tympani into the temporal fossa of the cranium. These very dehiscences and imperfections in the tegmen tympani are also frequently responsible for the rapid invasion of the cranial cavity following active suppurative processes in the ear in babes and young children, and for the rapidity with which meningeal symptoms are produced.

The tegmen antri is similar in structure to the tegmen tympani, a thin, weak and occasionally deficient lamina of bone which walls off the mastoid antrum from the deeper and posterior temporal fossa. It has been asserted by close observers that, with every active and destructive suppurative process that attacks the tympanic cavity proper, the mucous membrane lining the aditus, the antrum and the mastoid cells is also involved, and that exudates in the mastoid antrum occur with even greater frequency than is evidenced by our clinical and surgical data. If this observation can be substantiated, invasion from the mastoid antrum through its tegmen may threaten more frequently than has as yet been determined.

In the acute diseases of the middle ear cavity which may lead to brain abscess, therefore, the two most vulnerable spots by which infectious matter may enter the brain tissue or its membranes directly are the tegmen tympani or tegmen antri, by erosions or through dehiscences.

Another avenue by which the cerebral fossa may be invaded and one which has been brought more prominently to notice in the last few years because of the distinct advances that have been made in its physiologic and pathologic study is the labyrinth. The pathology of the labyrinth was until recently a very obscure field in otology, but it is patent to every clinician and pathologist in this field to-day that a frequent source of invasion of the cerebral fossa is by an attack of a pathologic focus at the foot-plate of the stapes, the development of an acute labyrinthitis and extension of the process into the cochlea and either directly into the deeper cerebral fossa or by following the sheath of the auditory nerve to the cerebellar area.

There are occasional cases of invasion of the mastoid area, or even of septic foci in the cerebral fossa, which in their origin may defy most expert diagnostic skill and only be brought to light on the post-mortem table. These are the fortunately rare cases in which infection is carried to these deeper structures of the cranium either directly by the lymph-channels or by the blood-vessels in direct communication with the original focus of infection.

In passing it might be only necessary to refer to the numerous emissary veins by which the lateral sinus may communicate with adjoining vessels, of bone perforations for the passage of nerve branches which may at times be the site of dehiscences where a purulent process may attack the vital areas under consideration from an unsuspected point, the facial canal, a tortuous bony aqueduct which may carry pus along the sheath of the nerve to the deeper structures and may infect the labyrinth and cerebellar fossa; all these are avenues of infection which must be taken in consideration when tracing a suppurative focus from its source.

Until recently abscess of the brain was regarded as a complication to be found almost exclusively in the chronic forms of suppurative otitis media, but as a vast amount of careful clinical observation and corroborative pathologic data are being accumulated we are beginning to realize that the acute and actively destructive pathogenic processes involving the middle-ear cavity are also agents in the production of brain abscess.

For many years we have been guided by the observation that a long-standing suppurative process in the middle-ear cavity with its natural destructive tendencies, bone erosions and necroses, cholesteatoma formations, sinus thrombosis, chronic mastoiditis with its accompanying granulations and invasion through the tegmen antri of the posterior fossa — in fact, that all these more slowly developing pathologic processes were directly responsible for the formation of extradural, subdural, cerebral or cerebellar abscess But it is in the acute types that the more atypical development of brain abscess occurs

The distinction which may be made between brain abscess developed as a sequel to an acute suppurative process in the middle ear and brain abscess developed as a sequel to a chronic suppurative process in the middle ear is, in my opinion, of as little significance from a pathologic point of view, as is the classification of acute, subacute and chronic otitis media suppurativa The differentiation of the acute, subacute and chronic suppurative processes in the middle ear cavity is largely a chronologic one and depends pathologically on the amount of tissue involved and destroyed and on the rapidity and virulence of the microorganism producing it So, too, a brain abscess produced as a sequel to an acute suppurative focus in the middle ear, even if small in size, but dependent on an active streptococcic invasion, may be more serious and destructive and more frequently fatal in character than a brain abscess of large size produced by a less active staphylococcus where the abscess formation may have existed for months

When we consider, therefore, irrespective of the fact that the invasion of the middle-ear cavity may be acute or chronic in character, that there is frequently an imperfect development of the tegmen tympani or tegmen antri, that the knee of the lateral sinus may encroach markedly on the posterior wall of the mastoid antrum, that the floor of the middle-ear cavity may be incomplete and imperfect and in close touch with the jugular bulb, that the petromastoid and petrosquamosal suture may remain unossified for many years, that emissary veins and small vascular and lymphatic vessels may be anomalously found throughout the depth of these areas, we are justified in our conclusion that there is an enormous possibility in both acute and chronic processes for extension of disease from its primal focus in the middle ear to its surrounding intracranial areas

If it has been the consensus of opinion so far that brain abscess in its various types has been more frequently determined in chronic than in acute suppurations of the middle ear, is it not possible that the avenues of infection which are so numerous and often so anomalous have not as yet been perfectly understood?

The various types of brain abscess — (1) extradural abscess, (2) subdural abscess, (3) cerebral abscess, (4) cerebellar abscess — considered as sequelæ of middle-ear diseases are simply pathologic entities which differ in location, size and rapidity of development and are dependent on the intensity of the inflammatory process, virulence of the pathogenic organism producing it, resistance of the involved tissues and activity or chronicity of the original pathologic focal point

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS M'KERNON, DERCUM AND GOLDSTEIN

Dr. John H Gibbon, Philadelphia Most of us who do much brain work feel, I think, that probably we are less certain in this field than in any other—and our mistakes come up before us when it is a question of localization of brain lesions I remember twelve years ago a case in which a woman had middle ear disease on both sides and all indications pointed to location of an abscess on one side, I made a complete exploration and found no abscess, the woman died and the lesion was found to be on the other side Now that is an experience which a good many of us have had It is a difficult point, too, and needs elucidation, whether the abscess is in the temporosphenoidal lobe or cerebellum We have a better opportunity, I think, to say whether a tumor is located in one of these two positions than we have in the case of an abscess, and yet even in the question of tumor we are often mistaken I recently made an exploration of the right hemisphere of a brain which another surgeon had previously examined, and neither of us found the tumor though unquestionably the patient had one and at necropsy it was found to be in the cerebellum

One point brought out in the paper by Dr McKernon, which, of course, most operators appreciate now and yet not all, is the mistake of exploration of the brain without reflection of the dura One may feel a little safer without making a dural flap, but it is far better to have a large opening and make a dural flap In the other method there is very apt to be an infection of the space between the brain and the dura and even when the flap is reflected the space should be thoroughly protected by gauze packing I know of nothing more important than this Of course if the plan of Ballance is followed of doing the operation in two stages this danger is largely obviated

We have made the mistake too often of packing these cavities with dry gauze and medicated gauze especially iodoform gauze It is not the fault of the gauze but the way in which it is used It is a mistake our dental friends make so often, that of packing a piece of cotton into an alveolar cavity It acts as a dam The tube on the contrary is hard and in the acute abscess cases is capable of doing damage I consider the cigarette drain—not just a small piece of gauze—the best of all It is not a cigarette drain until it has its covering of rubber or gutta percha tissue Then we get capillary drainage, and that is the important matter, in organs like the pancreas and the brain It should be put in gently and not packed tight

Dr. George F Cott, Buffalo, N Y The first one hundred radical operations I did showed eighteen epidural abscesses from not one half of which were there symptoms In one patient, the only symptom of intracranial trouble was that he could not speak On opening that patient's skull we found pus in the anterior fossa covering the anterior half of the brain Another patient came to the hospital and walked to the operating table with no symptoms at all not even pain or rise of temperature, and we found an abscess bathing the whole of one side of the brain, and at necropsy we found an enormous amount of pus Both of these patients, however, were syphilitic

Another patient, sitting in a chair when I was called to see him, had deep seated pain, a temperature of 104, and had had chronic middle ear suppuration for many years In this case I expected to find epidural abscess I operated and did find an epidural abscess and pus in the lateral sinus He apparently had no symptoms except the deep seated pain After operation he began to have typical temperature of phlebitis

Another patient, a boy of 12, I saw in the afternoon and operated on the same day He simply complained of not feeling able to be up, no other symptoms He had chronic middle ear suppuration Radical operation was done and simply a thickened dura found That night at 10 or 11 o'clock he suddenly stopped breathing and artificial respiration was carried on for about an hour, but the patient died Necropsy showed a cerebellar abscess which had apparently no connection with the middle ear

Another man complained of dizziness and had had chronic middle ear suppuration for forty eight years (he was then 49) and no other symptoms except that occasionally he had attacks of vomiting We examined the labyrinth and found total deafness and the labyrinth negative to the caloric and turning tests Apparently the labyrinth had not been acutely involved So we did a radical operation The next day the patient said he felt well enough to get up and break stone Two weeks later he was brought back complaining of giddiness again There was no nystagmus and in a week he was sent home again Five weeks later he came back again saying that he was suffering with dizziness and vomiting He was brought in on a stretcher We then found nystagmus to that often the diagnosis of intracranial complication is made by exclusion. We have the psychic symptoms, with peculiar headache and the modified slow pulse, etc., and still we are not sure as to whether we are justified in doing an exploratory operation and here is where the differential blood count made daily or twice a day will help us in reaching a decision. On three occasions I have opened the temporosphenoidal lobe and found pus on only the laboratory findings. The leukocytosis had suddenly decreased and the polynuclears increased. We do not place too much importance on a high leukocytosis, but when that begins to decrease and the polynuclears to increase we know our patient is absorbing rapidly and after excluding everything else we are justified in doing an exploratory operation. I have discarded gauze entirely in drainage. Ballance taught me several years ago that two or three small drainage tubes were far better than one and I still believe that is so. Two or three cigarette drains are better than the small rubber tubing. And since I have been using the cigarette drain I have not had hernia complications.

We must always have atypical cases. Three weeks ago I operated on a young man with no symptom except discharging ear and slight pain in the head. I found in exploring the temporosphenoidal lobe an abscess the size of a pigeon egg. A week later there was return of the headache and the patient went down rapidly. Autopsy showed complete degeneration of one half of the brain although there were no focalizing symptoms.

DR. M. M. CULLOM, Nashville, Tenn. We have all encountered the type of a mastoid which perdisposes to intracranial complications—a mastoid with a small, deeply placed antrum, covered with bone of exceeding density. The bone is of ivory like hardness with a complete absence of pneumatic spaces. I have always been *taught that this condition of the bone was* the result of disease, an eburnation of the bone, a rarefying osteitis the result of chronic suppuration. To my mind Mr. Arthur Cheatle of London has upset all our theories and rewritten pathology on this point. In his magnificent collection of sectioned temporal bones numbering somewhere near a thousand he has shown that 20 per cent. of all normal mastoids are of this type.

He has named this type of mastoid the infantile type. It has all the characteristics of the infantile mastoid except that the outer antrum wall is greatly increased in thickness and density. Now what is the practical point? It is that infection in such a mastoid may be attended with an utter absence of external physical signs. Tenderness cannot be elicited on account of the density of the wall. Likewise redness and swelling are absent for the same reason, so that necrosis may proceed unperceived by the surgeon. On account of the density of the bone it is unable to extend outward or downward and more readily extends to the middle or posterior fossa.

DR. THOMAS HUBBARD, Toledo, Ohio. The relation of accessory sinus diseases and ozena to mastoiditis and brain abscess is a point that has not been referred to. As otologists we rather neglect routine examination of the nasal fossæ in mastoid cases, and especially such examination as would be useful in the study of complications of mastoiditis, such as brain abscess. We rarely find in the general reports of mastoid surgery and its complications reference to special examinations of the nose. Nasal suppuration considered simply as a cause of mastoiditis is of sufficient importance to merit routine study, and occasionally it may be the direct cause of brain abscess, and the mastoid disease a side issue. This subject was brought to my attention in the case of a woman who was in the hospital a few days for acute middle ear disease right side, with symptoms of mastoiditis and who escaped from the hospital and disappeared. Her unruly conduct at this time was probably due to cerebral disease. She came to my office ten days later and immediately on examination I realized that she was in a very serious condition. She had several symptoms of brain abscess, slow pulse, sluggish mentality, severe headache (right occiput), and the history pointed to the mastoid as the cause. I learned that only that morning while sitting with her baby in her lap she had indifferently allowed it to slip to the floor and without heeding the cries of the infant sat dazed and stupefied. I advised her to go to the hospital expecting to operate and find temporosphenoidal abscess due to the mastoid suppuration. The attendant who came with her remarked to me that she had long been fearful that the woman would injure herself as she had often noticed her picking scabs from her nose with a piece of wire. I found that she had an extensive ozena, and considerable areas of excoriated mucosa with granulations were visible in the upper fossa. I didn't hear from her that afternoon and called the next morning. She had died during the night. *Autopsy revealed the mastoid cells filled with granu*lations and pus, but no abscess in the middle, posterior lobes or cerebellum. In the right frontal lobe, however, in close proximity to the cribriform plate there was an abscess three quarters of an inch in its long diameter—evidently a rather old one as it had a firm wall, and there was an old fistulous lead toward the cribriform plate. In this case it is probable that the source of the brain infection was the nasal fossa and the mastoiditis was incidental. I examined the ethmoidal and sphenoidal sinuses and there was no evidence of chronic suppuration.

DR. W. L. BALLENGER, Chicago. It has been my misfortune to see a number of cases of brain abscess. I say misfortune because in many of the cases I have failed *to afford relief*. A few years ago we diagnosed an abscess of the brain located in the arm and leg region. We operated and drained the abscess, but the patient died in forty eight hours. This winter I saw a case of abscess diagnosed by a leading neurologist and myself. There was paralysis of the arm and leg of the opposite side. There were also, in the early history of the case, some very interesting points. The patient had a peculiar gait, followed by complete paralysis of the left leg *and left arm. In the early stage of the trouble there was* history of difficulty in swallowing and the existence of hoarseness. The neurologist thought the case probably one of abscess of the cerebellum at the pontine angle on account of the involvement of the larynx. There was no nystagmus of any kind. The physician in charge of the case was an intelligent specialist who said there was no nystagmus at any time. This made me doubt the diagnosis of the location. We did not find pus on exploration. Before the patient went home she had gained to a large measure the use of the arm and leg. The patient is still living and is improving somewhat as to the paresis.

I had this winter an interesting series of cases, eight or ten, of mastoiditis, all of which followed acute tonsillitis. There was subsidence of the tonsillitis and then development of mastoiditis and then intracranial complications. These were all in private practice. The series included brain abscess, lateral sinus thrombosis, meningitis, circumscribed meningitis and leptomeningitis. In none of the cases of abscess so diagnosed were we able to drain the abscess. I consulted a neurologist who thought one case to be temporosphenoidal abscess. We explored this lobe and then went through the tentorium but did not locate an abscess. I made a lumbar puncture and found the fluid loaded with pus. The patient died in forty eight hours of meningitis.

As to the value of the nystagmus as diagnostic between cerebellar disease and labyrinthine disease: the nystagmus of cerebellar disease is usually of increasing intensity, whereas in acute destruction of the labyrinth it diminishes in intensity and ceases in a few days. That is a point that may aid us sometimes. And so the pointing test of Barany is of immense value.

DR. C. M. MILLER, Richmond, Va. I had a few years ago what was to me something new. I was called in consultation to see a young man who had distinct mastoiditis, very acute, not chronic, bulging drum, etc. I made a free incision, and insisted on immediate mastoid operation. The patient was timid and refused surgical aid. His physician, who was a relative, persuaded me to continue in the case and treat it. Finally the patient was able to go around and at the end of ten days, though there was still tenderness, sagging of the posterior wall, etc., he was able to go to his office and attend to business, but after a few days he decided to go to the hospital for operation. We had made an exhaustive history of the case He thought he remembered in childhood having had a running ear for a short time We opened the mastoid and cleaned it out but did not lay bare the dura at any point, on uncovering the lateral sinus it was found to be healthy Early in the morning of the eighth day after operation I received a hurry call saying that the patient was suddenly stricken unconscious with stertorous breathing and slow pulse I told them to put him on the table and have him ready for operation I removed a large part of the squamous plate and found the dura as hard as the skin over the bone I made a crucial incision 1½ inches in each direction and there was voluntarily extruded an encapsulated abscess 2 inches in its greatest diameter and over 1 inch in its smallest, oval in shape, at the point nearest the petrous portion there was a necrotic spot a half inch in diameter The pathologist made a diagnosis of encapsulated abscess not less than six months old. Now there was no history except this vague one of running ear during childhood, no symptomatology during this attack except that the patient complained of occasional photophobia, fundus oculi was not examined He died in twelve hours with temperature rising to 106 5

Dr Max Goldstein, St Louis In this discussion all opinions seem to point to the indefiniteness of diagnosis All seem to agree as to surgical points, technic, etc., but the great stumbling block is diagnosis Almost all of the cases that have been specially mentioned have been atypical cases It seems that nearly all the cases of brain abscess are atypical I do not think the difficulty of diagnosis obtains in apparently typical brain abscess Until we can arrive, from further data, at a more substantial conclusion as to what constitutes a real symptom complex in brain abscess, we will continue to have difficulty in reaching a standard by which we can agree as to when to operate and when to wait, or how to differentiate the various types Too little stress has been laid on the question of destruction of the labyrinth The labyrinthine research of the last five years, of Barany, Neumann, Alexander and others has been so excellent and active that much valuable information has been obtained, and the diagnosis of labyrinthine diseases and their relations to intracranial complications may now be determined with considerable less difficulty

Dr James F McKernon, New York In Dr Goldstein's paper he mentions that one of the causes of intracranial complications is the dehiscences in the bone Eight years ago I presented a communication to the American Otological Society on primary bulb thrombosis in children and called attention to the fact that one of the pathways of infection was the presence of these dehiscences in the floor of the middle ear During the past year and a half I have been making investigations to substantiate that theory We have had 160 autopsies and in that series there were dehiscences in 28 per cent, leading from the floor into the jugular bulb It is not probable that they all remain there during life, but it is possible that some of them do and that that is the pathway of infection in these cases I thank Dr Gibbon for bringing to my mind one point, and that is protection of the dura at the time of incision We do protect it, not only with gauze, but cover that with rubber tissue

Dr F X Dercum, Philadelphia I recognize fully the importance of determining the labyrinthine condition, but that, of course, is the business of the otologist and not of the neurologist With regard to the diagnosis of brain abscess, the use of brain puncture, as practiced by Foerster, Pfeifer and others, might now and then in brain tumor prove of value, but it is a dangerous proceeding in brain abscess because it may lead to increased spread of the mischief

The symptomatology is very different from brain tumor In brain tumor the diagnosis is very much more clear and definite We can make out the localization of the growth in many cases, but we frequently fail when the question of brain abscess comes before us Otologists see, of course more cases of brain abscess than the neurologists The latter see them generally when called in by the otologist or general practitioner

With regard to diagnosis it seems to me we should perhaps study the nature of the disintegrating process in the brain, its chemistry, etc. We know that the pus of brain abscess is peculiar in several respects We know the patient has a condition of mental confusion which is not caused by pressure, but doubtless is due to some toxic agent that is being secreted Another symptom is that peculiar fetor of the breath with which we are all familiar and which probably also has to do with this toxic agent. This is not present in brain tumor or thrombosis We must look to our chemists to give us some additional information for we need something more definite on this subject

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THE RELATION OF NASAL CONDITIONS TO ASTHMA

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Asthma is a condition or symptom-complex characterized by intermittent paroxysmal dyspnea and vasosecretory disturbances As yet, so little is positively known of its etiology and pathology that great differences of opinion exist as regards an exact definition of the affection

So-called cardiac and renal asthma are not considered in this discussion, since they are not true asthma but rather dyspnea, and are clearly distinguishable from asthma proper

The principal pathologic conditions exhibited by an attack are spasm of the bronchial and other respiratory muscles, especially the diaphragm, and turgescence, edema and hypersecretion of the mucous membranes of the respiratory tract, resulting in extreme emphysema of the alveoli

Of the 200 cases diagnosed as "asthma" at St. Mary's Hospital (Mayo Clinic) during the past three years, in sixteen there were lesions of the heart, lungs or kidney sufficient to give symptoms overshadowing those from all other sources Some of the patients also had pathologic conditions in the upper respiratory tract of secondary importance, which may have contributed to the symptoms

In 184 of the series the principal lesions were found in the nose, in the accessory nasal sinuses or in the nasopharynx One hundred and fifty-seven of these had evident purulent, mucopurulent or seropurulent discharge in the nostrils or in the nasopharynx

Fifty-eight had polypi in one or both nostrils, fifty-two had polypoid degeneration of the mucous membranes of the middle turbinals, and one of the ethmoid region

Sixty-three patients had suppuration of one or both antra, and in nineteen antra which produced no pus on irrigation were dark on transillumination In some of these cases there was undoubtedly an inflammatory condition of the antrum without the accumulation of pus

Twelve children, from 11 months to 11 years of age had large tonsils and adenoids, associated with and probably in most cases the cause of, chronic edematous rhinitis

One hundred and thirty-eight of the 200 patients under observation have been treated by operation, local applications in the nostrils or by irrigation of the accessory sinuses

Reports from 104 patients treated more than six months ago, have been received and tabulated as to results, without regard to the extent to which the treatment had been carried In several instances, only a single treatment had been given, or, an operation had been performed and its object not assured for want of after-care Other patients who were free from symptoms for from six months to one year had suffered recurrences and are here classed according to their present condition Most of these patients are non-residents and many are in such circumstances that they are unable to remain or to return for satisfactory treatment

Although the tabulation does not show it accurately, a study of each individual history indicates that, almost invariably, relief of the asthmatic symptoms corresponds in degree to the extent to which the pathologic conditions in the nostrils, nasal sinuses and nasopharynx have been improved This response of the more general symptoms of asthma to strictly local treatment in the upper respiratory tract confirms the opinion which the constant association of lesion in that region with asthma has given, viz, that these lesions are the cause of abnormal systemic condition and that asthma is the manifestation of that condition

Since the publication of the results of experiments in anaphylaxis by Theobald Smith, Otto,[1] Rosenau and Anderson[2] and others, the theory that in anaphylaxis is to be found the explanation of the occurrence of asthma has been advanced by Meltzer[3] and others Auer and Lewis[4] have demonstrated conclusively that the dyspnea which is the chief manifestation of anaphylactic shock is produced by stenosis of the bronchioles, by spasm of the circular bronchial muscles, and that, while this stenosis is associated with, it is not dependent on, spasm of the diaphragm, since it can be produced separately This muscular spasm and the resulting emphysema can be produced in the absence of the central nervous system, thus proving that it is not a reflex but a local reaction to systemic condition.

RESULTS AFTER SIX MONTHS OF THE TREATMENT OF 104 PATIENTS

	Entirely Relieved	Markedly Improved	Slightly Improved	Not Improved	Total Number
Local applications or irrigations of the accessory sinuses	8	11	3	4	26
Operations on polypi middle turbinals or ethmoid	11	11	13	15	50
Operations on the antra, one or both	5	5	1	0	11
Operations on antra and middle turbinals and ethmoid	2	4	2	1	9
Operations on inferior turbinals or septum	0	1	0	1	2
Operations on tonsils and adenoids	5	0	0	1	6
Totals	31	32	19	22	104

Exactly the same condition of the lungs exists during a paroxysm of bronchial asthma, and thus it is reasonable to assume that in asthma also the reaction is due to the effect of a general condition on the muscles or nerve-endings of the bronchioles, and that a reflex neurosis is of a secondary importance and not essential to the production of the symptoms of asthma

It has been proved experimentally for hay-fever and the asthma that accompanies it that, on the introduction of a minute quantity of the toxalbumin of the pollen into the blood of an individual subject to those affections, the symptoms of hay-fever and asthma appear, while in the normal individual no reaction occurs The same has been found to be true of the emanations of animals in the cases of those sensitive to them The sensitization has undoubtedly taken place by previous entrance of a foreign proteid into the blood or by heredity, which is an active factor in both asthma and anaphylaxis

More numerous and more serious are the cases which require the presence of no external irritant to produce the symptoms of asthma, but in which also the symptoms are exactly similar to the anaphylactic reaction So it is reasonable to assume that in the cases considered as idiopathic asthma there occurs the entrance of a foreign proteid into the blood in some way not yet demonstrated

It has been found that a foreign proteid capable of sensitizing the individual and later of producing the anaphylactic shock may result from autolysis of retained placenta or other tissues The frequency with which retained and altered mucoid and purulent discharges are found in the nostrils or nasal sinuses suggests that here is the site of the production and entrance into the blood of the foreign proteid which produces the anaphylactic reaction in these cases The quantity of the foreign proteid necessary to sensitize and later to produce the anaphylactic reaction in a susceptible individual is so small that the known absorptive powers of the nasal mucous membrane could undoubtedly pass it into the blood under suitable conditions Moreover, the reaction has been produced experimentally in guinea-pigs by the inhalation of animal emanations followed by the injection of serum from animals of the same species

The results of treatment of nasal conditions in asthmatic patients present still other analogies to anaphylaxis Operation to establish free drainage and aeration of the mucous membrane of the nose and accessory sinuses prevents retention of secretions, while in other cases the same may be accomplished by local treatment to stimulate profuse discharge so that secretions are washed away before autolysis occurs This prevents the formation and intermittent absorption of the specific foreign proteid which causes the anaphylactic reaction, commonly known clinically as asthma

So long as secretion and drainage are free and continuous, relief from asthma will be complete, but recurrence will usually result from the interruption of drainage even after long periods of immunity from symptoms

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[1] Otto Handbuch der path Mikroorganismen 1908 ii 255

[2] Rosenau and Anderson Arch. Int. Med 1909 iii 518

[3] Meltzer The Journal A M A., Sept 17 1910 p 1021

[4] Auer and Lewis Jour Exper Med, 1910, xii, 151

FURTHER EXPERIENCE WITH ENDOBRONCHIAL THERAPY OF ASTHMA

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In the cure of bronchial asthma a great many factors have to be eliminated before we decide to resort to endobronchial treatment The first to consider is the psychic element, which is manifested so strikingly in all those cases that can be influenced beneficially by suggestive therapy It is these which furnish the wonderful results that are triumphantly recorded by ignoramuses and charlatans But the large majority of cases demand every resource of medical science which too often is only very difficult to bestow

In a previous communication, I gave a brief historical review of the excellent showing made by laryngologists in the cure of asthma Names like Voltolini, B Fraenkel, Hack, Bosworth and others will bring back to memory some phases of what has been accomplished in the past They and many others have demonstrated that asthmogenous points may be found in the nose and throat (nasal polypi, spurs, adenoids, etc), and that by removing the existing pathologic conditions, we may and do rid a number of asthmatics of their trouble These are established historic facts which cannot be disputed But many other chronic diseases may reflexly lead to asthma Thus, Carl von Noorden but recently drew attention to the frequency with which asthma is associated with eczema, although the same observation had been made long before Furthermore, affections of the uterus and its adnexa or of the stomach and lower digestive tract may prevent the cure of an asthmatic patient, no matter how successful treatment has been otherwise

If in spite of every precaution, i e, a thorough examination of all these organs followed by treatment of any existing disease, the patient is still suffering from asthma, the physician is not only entitled, but morally bound, to put him or her to some more inconvenience i e, directly to inspect the bronchi, which, after all, are the real seat of the disease In doing this one will note that the so-called asthmogenous points are to be found here as well Many pathologic conditions will be disclosed, and it will be, as it was in the beginning of the laryngologic era, when, for example, a case of hoarseness was not only treated with ammonia and blood-letting, but was really "demonstrated *ad oculos*" It will repay the practitioner scientifically to do bronchoscopy, for it is most interesting work Thus far, however, some physicians are opposed to this procedure in cases of bronchial asthma They know the difficulties and dangers of bronchoscopy in cases of foreign bodies, but have not learned of its use for other purposes In the many cases in which I have used this method under local anesthesia I have not seen the least danger result from it Besides, with a little good will and cooperation on the part of the patient, it is not even painful It is in such diseases as asthma, however, that we have a great variety of patients to deal with Thus, if a badly behaving person coughs into your face even on examination of the pharynx, you will not be able to resort to bronchoscopy at once On the other hand, I have done bronchoscopy on hysterical patients without any anesthetic whatsoever These are extremes which encompass all shades and varieties As a rule, however, I do bronchoscopy in my office and the patients can go home at once The physician has to exercise a great deal of tact to gain the confidence and cooperation of the patients or else they will not respond and be helpful to him, and he will surely not benefit them

Now, what pictures do we see endobronchially? Does this method confirm our former knowledge of the morbid anatomy of the disease? Asthma being to a great extent a functional affection no gross lesions were formerly found while other signs were perceptible mostly *intra vitam* In pronounced cases, bronchitis is almost invariably associated with the asthma Endoscopically, therefore the mucous membrane will be found more or less swollen, often to such a degree that the cartilaginous rings cannot be seen at all This swelling is sometimes so pronounced that it bulges into the lumen of the tube and for a moment one may be in doubt whether one is in the trachea (bronchi) or esophagus

As the carina (bifurcation) is but little marked in such cases, it may happen that one passes the bifurcation without being aware of it In the smaller bronchi this condition is even more pronounced, so much so that occasionally—as has been pointed out before—the orifice of a smaller bronchus does not appear larger than the head of a small pin In such a case, the diameter of the bronchus may not show any difference during inspiration and expiration Von Schroetter observed even the reverse of the normal condition, i e, during inspiration the swollen mucosa was sucked in and the lumen of the bronchus thus closed, all owing to decreased inspiratory pressure

The rhythmic contractions of the trachea and bronchial ramifications are at times seen very plainly, but again may be hardly noticeable The same holds good of the respiratory excursions of the bronchial tree In no case of asthma have I ever seen the bifurcation move forward and downward, as it does normally

Spasmodic contractions of the bronchial muscles are quite frequently noticeable, but generally they can be overcome by the application of cocain This contraction is observed even when the patient is breathing quite comfortably, but in such a case only a smaller bronchus is affected On endobronchial inspection, furthermore, all kinds of catarrhal conditions will be found, represented in bronchitis, from a very slight injection of one small bronchus to a swelling of the entire mucous membrane It seems to me that the latter is to be found especially beyond the place where the spastic contraction takes place Thus, we will often observe a capillary bronchitis which is not only due to an inflammatory process, but also to nervous disturbances

I would emphasize that on inspection of the bronchi, the same conditions will be encountered as in the larynx, one portion is affected, the other not One bronchus may be seen highly congested and thickened, while the other right next to it may have a normal appearance The belief that in asthma the process must necessarily be disseminated all over the bronchi is erroneous Occasionally you will also find an ulceration, but that is rather exceptional

TREATMENT

In a previous paper, I asserted that the introduction of the bronchoscopic tube is in itself of therapeutic value, as it relieves the patient of a great deal of secretion, thus naturally rendering breathing easier But with clearance of the air-passage the task is not accomplished, there remains, as Berkart[1] calls it, the source of the disease Now we can reach the mucosa directly and make topical applications At the beginning of my experiments in this direction I used to limit myself at this stage chiefly to the injection of adrenalin (epinephrin), of which large doses were used But having since then recognized the great danger of this drug in some instances, I now employ much smaller quantities viz, 15 to 20 drops of a 1 5000 solution In addition, many of our old well-established astringents have been applied, for example, nitrate of silver, chlorid of zinc, argyrol, sulphocarbolate of zinc and others In cases in which the secretion has ceased after repeated introduction of the tube, the insufflation of anesthesin or orthoform has had a very sedative effect

It is not sufficient, however, to depend solely on local applications, for in asthma, more than in other systemic diseases, the specialist must never forget that he has to treat not a single organ but the entire system The stomach and bowels have to be regulated, an appropriate diet should be prescribed for each individual case, the amount of work and rest must be determined, etc By all means, the patient must be shown that you are master of the situation, that he must do what you want him to and that he is capable of accomplishing it If he learns to obey you, he will carry out your suggestions and will get well

After the patient has received a thorough course of endobronchial treatment, there is nothing that will assist so much in building him up and completely eliminating the disease as a change of climate There are many resorts here or abroad that are well adapted for such cases, but the selection of the most suitable is not always easy It will depend on the physical and mental state of the patient, and on the nature of the complications, anemia, obesity, weakness of the heart, derangements of the digestive organs, diseases of the skin, etc Each of these affords a different indication "Thus in the one case alkaline muriatic, in another alkaline saline, in another ferruginous, in still others sulphur or arsenical waters[2]" will give the best satisfaction

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[1] Berkart Bronchial Asthma 1911

RESULTS

To effect a cure in cases in which all former methods have failed — and of these there are not a few — we welcome any new procedure, however difficult its use The endobronchial treatment, according to the reports of those who have earnestly tried it, fulfils all we expected of it, and will, I am sure, give even better results in the future After a somewhat extended experience, I feel inclined to say that more than 50 per cent of patients treated endobronchially have been cured, and that is conservatively speaking It must be understood that all these cases had been previously submitted to all other means at our disposal and that topical applications to the bronchial mucosa had been the last resource Where we succeed in finding the asthmogenous points in the bronchi and are able to treat them directly, we generally get quick results Where we are unsuccessful in that respect, the treatment is prolonged and the outcome doubtful Furthermore, if neurasthenia is the dominant feature and asthma only one of the many other symptoms of the underlying disease, our task will likewise be very difficult (Case 4)

A relapse may occur after a year or sooner, but such cases generally yield quickly to treatment Sometimes one or two local applications suffice to restore the lost equilibrium But I have had cases in which complete relief from the asthmatic attacks has lasted over two years, i e, ever since I first began treating asthma endobronchially I may justly assume that such patients are permanently cured

During the past year I have treated a number of cases of which I will mention only a few instances

CASE 1 —Mrs S H., aged 48, has suffered from asthma for the last twelve years Several members of her family had the same disease She had consulted many physicians here and abroad and had taken cures in Germany, England, Switzerland and Egypt An area between her shoulder blades was very sensitive, so sensitive that the bare idea that some one might touch that spot gave her pain She could not sleep longer than two hours at a stretch and smoked many cigarettes (stramonium) She had five intranasal operations and presented a rhinitis sicca Treatment was begun September 30 As she absolutely refused to permit any application to her nose, I started at once with bronchoscopy Half an hour after a hypodermic injection of morphin (¼ grain) the tube was introduced I did not pass it very deeply at this attempt, hardly reaching the bifurcation, but the patient was convinced that the introduction of the tube was possible and that without much inconvenience to her By and by the morphin was discarded and only local anesthesia relied on, with the result that I finally could easily explore any part of the bronchial tract The right side was almost exclusively affected and topical applications of silver nitrate (3 to 10 per cent) cured this patient in about ten weeks

CASE 2 —H L., bookkeeper, aged 36, a nervous wreck, had suffered with asthma for twenty five years Endocarditis was present with anasarca for one year I had to give him ⅓ grain morphin besides the use of local anesthesia before bronchoscopy could be done After several weeks he felt greatly relieved, but the morphin caused a good deal of obstipation, a condition from which he had suffered anyway for years He had pronounced hemorrhoids, but refused to have them removed The indication for such an operation was very urgent, as his bowels and stomach were constantly upset This finally prevented a cure of his asthma and he had to be discharged

Comment —This case shows distinctly, as pointed out above, that an asthmatic patient can never be cured unless all abnormal underlying conditions are removed It is my conviction that this man could have been cured by endobronchial treatment if the hemorrhoids had been removed and his diet regulated

CASE 3 —Miss R G, aged 25, had suffered with asthma for the past five or six years The patient was very stout, had poor appetite, and her attacks occurred in the daytime as well as during the night Aside from the topical applications of diluted adrenalin (epinephrin) and chlorid of zinc to the bronchus which seemed to be mainly affected, she resorted to gymnastic exercises, etc, and within five weeks felt perfectly well

CASE 4 —Annie ——, 28 years old, is the severest sufferer from asthma at the Montefiore Home, in fact she hardly gets over one attack when another follows I saw her on January 10, when she was struggling for breath, applied a 5 per cent cocain solution and inserted the outer tube only The pulse had been so weak that I did not risk pushing the cocain After removing the tube her breathing, if anything, was worse Then I told my assistant in a loud voice to give her a hypodermic of morphin, "the strongest we have" He understood and injected some distilled water, whereupon the patient breathed naturally within three minutes

Comment —This is a case of such pronounced neurasthenia that asthma is only a small portion of the patient's trouble Her attacks are certainly very severe She was cyanotic when I saw her, but all symptoms disappeared after she received the supposed morphin injection I found out later that she was accustomed to bring on these attacks especially when many physicians are around

CASE 5 —M N, aged 43, banker, had been suffering from bronchial asthma severely for one year and was forced to give up his business He had consulted several laryngologists and internists of this city and had received intranasal treatment. On introducing the tube into the left bronchus, such a remarkable pulsation was noticed that I was almost certain I had to deal with an aneurysm of the aorta The tube was withdrawn and the chest reexamined for an aneurysm, but with negative result Nor did a skiagram show any evidence of such a condition Finally, I concluded that this phenomenon was nothing but the pulsation of the normal aorta that was closely attached to the left bronchus These pulsations were transmitted even to the tube and could be seen externally

Although this point has been brought to notice before by H von Schroetter,[3] I was still under the impression that after all I might have here some small dilatation of a blood vessel and accordingly introduced the tube with more care than usual Within one week the patient developed articular rheumatism that interrupted the endobronchial treatment for six weeks Dec. 6, 1911, bronchoscopy was resumed and continued for three weeks After he began to experience relief of his asthma, rheumatism set in again, and on advice of his family physician he went to Hot Springs A cure of four weeks at that place removed his rheumatic troubles, but in spite of the salicylates and iodids he had taken, his bronchial asthma grew worse, so bronchoscopy was resorted to again The first four weeks he failed to show improvement He was just about giving up treatment, disappointed, when he commenced to improve rapidly, so much so that in about three weeks his respiration was perfectly free He was able to enjoy six or seven hours of continuous sleep at night, a pleasure he had missed for many years Since the middle of March the patient has been free from asthma

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[2] Berkart Bronchial Asthma p 127

[3] von Schroetter, H Klinik der Bronchoscopie, Jena 1906.

Comment—In this case, two points were of great interest to us (1) the pulsation of the left bronchus that was so remarkable, and (2) the fact that the patient became desperate just when his disease took a favorable turn The case shows how much may sometimes be accomplished even under very unfavorable conditions

CASE 6—Mrs M. G W, aged 53, was stout, short necked and absolutely unable to take the least exercise A short walk of two or three blocks entirely exhausted her Seven years ago I had removed nasal polypi and had operated on her deviated septum with the hope of abolishing her asthma. She enjoyed free nasal breathing, but remained a sufferer from that dreaded disease with constant attacks Curvature of the spine was pronounced In the larynx there were thickening of the posterior wall and paralysis of the transverse muscles As the patient objected to endobronchial treatment, the larynx was first treated with good results, but the asthma remained *in statu quo ante* Finally her fear of bronchoscopy was overcome, but it took a great deal of patience and perseverance before a satisfactory inspection could be made From that moment on she improved remarkably Masses of mucoid secretion were discharged after the introduction of the tube, then adrenalin (epinephrin) was injected, and finally a powder, consisting of tannic acid and orthoform, was blown in Another important part of the treatment consisted in restoring the confidence of the patient in her own physical powers She took to gymnastics slowly, very slowly indeed, but so effectively that the digestion was greatly improved and gradually she became able to sleep quietly at night She was sent home free from any asthmatic attack, and in a hopeful frame of mind

Only few of the cases treated have been reported here They clearly show that after everything else has failed a great deal may be accomplished by the endobronchial method Of course, there have been failures, but by far the majority of these occurred in patients who consulted me only once or a very few times On the other hand, I have had two patients who were cured after a single introduction of the tube The result in these is naturally to be considered as due to suggestion alone But as long as the patients were cured, I have reason to feel satisfied, no matter how this was accomplished

In conclusion I would summarize my views as follows Bronchial asthma may be produced reflexly by disease in different parts of the body Therefore, every asthmatic should be examined thoroughly, and if gross lesions are found in the nose and throat, in the uterus or digestive tract, etc, they should be treated carefully after which the asthma frequently disappears In many other instances however, this does not suffice In such cases the asthmogenous points in certain parts of the bronchial ramification need special treatment and this is accomplished by direct local applications This, in many instances, is a difficult task, but we are often rewarded by most gratifying and satisfactory results

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS MATTHEWS AND FREUDENTHAL

DR. F R LEWIS Dubuque Ia Keeping in mind the idea that bronchial" asthma may be largely an anaphylactic reaction we find it less difficult to explain the discrepancies between cases of pronounced asthma showing slight or undemonstrable nasal disease and those showing very extensive nasal disease with little or no asthma, between highly neurotic individuals with extensive nasal disease and no asthma, and those non neurotic persons showing extreme degrees of asthma with only slight or undemonstrable nasal disease

DR. G F COTT, Buffalo I think Dr Freudenthal has been treating something which does not exist that is, idiopathic asthma I believe it is simply a toxemia and that these other conditions, such as bronchitis, etc, are concomitant and not the causes or effects I have treated a physician's father, who had been treated by twenty one different physicians each one of whom said he had bronchial asthma I was called to see him at three or four o'clock in the morning Now my opinion of a man with toxic asthma is that he doesn't feel very bright and happy about the time of the seizure, but this man was telling funny stories He had been suffering for a month with a single attack, which you certainly do not find in bronchial asthma I proposed doing a tracheotomy and he consented He breathed more easily but died a few days later and we found a small tumor, about the size of a hen's egg, pressing on the trachea which proved to be an aneurysm

Another patient, on whom I operated on this past Monday was supposed to have bronchial asthma I found that he had a distinct swelling over the trachea I did a tracheotomy under cocain Then I cut through and opened up the neck and a tumor, which proved to be a sarcoma of the thyroid, was found In conclusion, asthma is a symptom only and can never be classed as a distinct disease

DR. DENNIS MCDONALD, New York Excessive tea drinking is one of the causative factors in these disturbances It is surprising to see what proper methods of eating and drinking will do for children who have these spasmodic conditions The treatment of the intestinal tract also accomplishes a great deal. The next important thing is the matter of baths, the alternate hot and cold baths, though there is nothing like sunshine and the open pool The next important thing is the examination of such children for adenoid growths and diseased tonsils These methods will remedy many of the so called idiopathic asthmas

DR JUSTUS MATTHEWS, Rochester, Minn In all the cases of this series the patients had a thorough physical examination to exclude, so far as possible such conditions as those to which Dr Cott has referred Several have mentioned reflex asthma, or a reflex neurosis, as a cause of asthma This has been a long standing opinion of the profession and has, of course, some facts in its favor But the exhaustive experiments of Auer and Lewis have proved that all the symptoms of asthma can be produced when all connection of the central nervous system with the respiratory system has been cut off, thus showing that asthma is a local reaction and not the result of a reflex Dr Freudenthal's treatment of bronchial conditions is, I think, quite in accordance with the theory of anaphylaxis, and merely points to another source of a *foreign* proteid

In many cases of long standing asthma there is a marked bronchitis or even bronchiectasis, with retained secretions, which may assume the relation of a foreign proteid in cases in which the *primary site of absorption has been removed by* nasal treatment or operation The use of epinephrin furnishes another analogy between spasmodic asthma and anaphylaxis If epinephrin be injected at the same time as the second dose of foreign proteid, it inhibits the anaphylactic reaction just as it does the *asthmatic spasm if administered during an* attack The condition of the intestinal tract has a relation to this question since it is recognized that it has a marked influence on the upper respiratory tract which might favor the retention or absorption of secretions there Also there is the *possibility of the foreign proteid entering the blood from* the retention of secretions or other substances in the intestines As to the seat of the disease being primarily in the lungs, I believe that the fact that in early cases there are no pathologic signs in the lungs indicates that the later changes *there are the result and not the cause of asthma*

DR WOLFF FREUDENTHAL [illegible] I [illegible] with Dr Matthews, the lesions in the [illegible] lasted for some time It seems I have not been understood by Dr Cott I have tried to speak of a disease known as bronchial asthma—that is, patients who have spasmodic attacks at night or in the early morning, etc A man who has had difficulty in breathing continuously for a month and shows afterward a tumor of the trachea has nothing whatever to do with my paper No matter what name you give the condition, idiopathic or not, the patients were cured Naturally, if there are spurs or polyps in the nose we would remove them, or if there are tonsils that are diseased we would remove them But if all these procedures fail to bring on a cure, then we go further, examine the bronchi and treat them by local applications

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INDICATIONS AND CONTRA-INDICATIONS FOR TONSILLECTOMY

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Concerning tonsils, it might be well to divide surgeons into two classes, first, those who want to go to the very bottom of the question regarding the function of the tonsils and base the surgical indications on some theory, second, those who base the indications on the clinical and pathologic facts, as presented, hoping that soon the function of the faucial tonsil will be settled

It seems to me that the tonsil has some function early in life which is later easily overcome, in many cases, by the raids of bacteria on it The men with the extreme theories — those, on the one hand, who believe that the gland has an important place in the system, and those, on the other hand who believe that it has no function and whenever found is abnormal and should be removed — are both wrong

Dr Jonathan Wright[1] has given this subject much consideration He says

> The function is one of defense against infection The enlargement becomes pathologic only when it injures the system more by its presence than it assists in whatever physiologic acts of defense it may perform Many large tonsils exist throughout life without danger or inconvenience to the individual Of course they so frequently reach such size that they injure the patient's health in cutting off the proper supply of air The crypts are retorts in which the germs are destroyed or modified so that they live in peace with their host, or they are allowed to pass through in such numbers as can be dealt with by internal processes without the destruction of the host The tonsil is a definite organ and in man is the most highly developed of all the lymph nodes

In infancy it is rarely affected but in early childhood it too often causes trouble in a number of ways, and then after puberty it should practically never give trouble

The tonsil becomes pathologic only when its presence injures the individual, either locally or generally, not because someone discovers a pair of tonsils in that throat

An observation that I have stated several times in the past is that the submerged tonsil, which may be quite small, is more liable to be doing harm than the fairly large, discrete tonsil It is only in the last few years that the tonsil has been judged pathologically other than from its size alone

The very large discrete tonsil may interfere with proper breathing, the development of the jaw and face or cause an irritation of the fauces, then it should be reduced In its reduction, tonsillotomy will do wonderfully well in the majority of cases, but it must be remembered that the remaining portion may reproduce the hypertrophy, or the cicatrices formed over the stump may interfere with crypt drainage and convert the remaining portion into a diseased condition that will allow toxins and germs to invade the system, which the whole gland did not permit before So it seems reasonable, as it does not increase the patient's risk, that there should be a *complete removal of the tonsil*

The tonsil that is more or less submerged is the one that nearly always is to blame for the infective processes about this region and in the neck, and from the neck to the general system

In peritonsillar abscess, total removal is the only guarantee against recurrence In deep infections of the neck, when the tonsil is the primary focus, the gland should be removed at the time the infected area is drained

When the cervical glands at the angle of the jaw become infected either acutely or chronically, the tonsil should be considered the source of the infection, unless something else very definite is found to be the cause, and the sooner the tonsil is totally removed the better the prognosis for the adenitis I have seen several cases in which partial removal has increased the infection and even produced cervical adenitis, but have yet to see such a condition follow tonsillectomy A simple adenitis will rapidly disappear and a tuberculous adenitis will be reduced to some extent This is due to the stoppage of the infecting flow from the primary focus

In a large percentage of cases of tuberculous adenitis at the angle of the jaw, the tonsil will show tuberculous foci and to remove the tuberculous glands and leave the tonsils is to invite reinfection of the neck The tuberculosis of the tonsil which leads to adenitis in children is *in a considerable number of cases* of the bovine type and not so dangerous to life as the human type[2 5]

When a tonsil is overcome to an extent that it is no longer able to take care of the germs that are constantly in its crypts, the lymph-nodes at the angle of the jaw, into which it drains, will become somewhat enlarged, and it is in this class of cases that we see evidence of malnutrition, a low grade of toxemia and under-development When a child's tonsil reaches this stage it should be removed, and totally, because it is down in the bottom of the crypts that most of the septic invasion is taking place

Bad crypt drainage seems to be the cause of most of the abnormal conditions and this bad drainage is usually due to the tonsil being buried behind the pillars and in the velum palati This gives, besides the conditions already mentioned, chronic tonsillitis and recurrent acute inflammations These conditions are rarely found in a perfectly discrete tonsil It is also true that tonsils may be badly infected, for instance, allowing tubercle bacilli to enter the neck glands, and yet the patient may give a history of never having had an acute inflammation — the tonsil itself attracting no attention to the unobservant

Though the etiology of the various conditions coming under the head of rheumatism is as yet unknown, every year more men of ability are joining those who believe that these conditions usually enter the body through the tonsil and that, therefore, its removal is of prime importance I think that the majority of us have seen patients in whom various conditions of the joints and pains in the muscles have disappeared after attention to the tonsil It is possible to relieve some of these patients by local treatment, but manifestly this is not so sure as total removal, however, this is a question to settle for each particular patient [6-14]

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[1] Wright, Jonathan New York Med Jour, Aug 8, Oct 10, Nov 7 1908

[2] Wood G B Lymphatic Drainage of the Faucial Tonsil, Am Jour Med Sc. August 1905

[3] Hurd and Wright *Ann Otol, Rhinol and Laryngol* June, 1909

[4] Mathews F S Ann Surg December, 1910

[5] Park W H and Krumwiede, C. Jr Centralbl f. Bakteriol, 1910 xlvii, Nos 22 and 24

The same position has been taken in chorea,[10] but I have had no experience in this connection

A submerged tonsil that extends well up into the velum, diseased or not, may cause interference with the normal function of the eustachian tube and, indirectly, with the middle ear, producing tubal catarrh, or one of the acute or chronic catarrhal or suppurative inflammations of the middle ear

The faucial tonsil has been blamed, perhaps justly, for an appalling list of septic and toxic conditions in different parts of the body, but if the chronically diseased tonsils had been treated in a proper way, this list would have been considerably contracted It also shows what a serious menace a diseased tonsil can be to the system

New growths, benign and malignant, should be judged by their size, nature and position and do not come under the subject here discussed

I do not wish to be understood as favoring tonsillectomy for every diseased tonsil, especially in adults, who will tolerate a certain amount of local treatment It is foolish to demand that a patient go through the risk and discomfort of tonsillectomy when relief can be obtained by such simple methods as slitting open the infected crypts or by the electric or chemical caustics

Whenever a new procedure that has merit makes its appearance, there is always a rush that carries a few men beyond the mark and for a time brings discredit on the method In the last five years the pendulum has swung strongly to the side of tonsillectomy, at the same time it must not be forgotten that tonsillotomy has done an infinite amount of good But there were too many cases of so-called regrowth of the tonsil until it was generally understood by the laity that tonsils, supposed to have been removed grew again, also that tonsillotomy did not always relieve the conditions for which it was done

Tonsillectomy is receiving some criticism for the poor results sometimes obtained and the deformities resulting in the throat Tonsillotomy is a comparatively easy procedure, that was, and is, performed by many besides the laryngologists Tonsillectomy has been the gradual evolution brought about by the laryngologist seeking a better way to meet certain conditions wherein the old operation of tonsillotomy had failed Tonsillectomy is by no means an easy operation It requires much experience and technical skill if a perfect result is to be obtained, regardless of the method used

I have tabulated 1,530 cards which have been kindly loaned to me by Dr W A Scruton The cards were filled out by the different members of the house staff of the Manhattan Eye, Ear and Throat Hospital These cards cover all the different operators with their various methods There was free primary hemorrhage 147 times (9 5 per cent) Of these patients fifty-two had the tonsil totally removed, and in ninety-five some tonsillar tissue remained In twenty-five there was both primary and secondary hemorrhage (1 6 per cent) Of these seven were total, in eighteen the tonsil remained, fourteen had secondary hemorrhage in which the primary hemorrhage was slight, giving a total of 2 5 per cent for secondary hemorrhages In twenty-seven there was profuse primary hemorrhage alone (1 8 per cent) Of these ten were total, in seventeen tonsil tissue remained In one case the operation was stopped before the second tonsil was removed on account of profuse hemorrhage Two of the patients took the anesthetic badly but recovered, these patients had the appearance of status lymphaticus

These statistics bear out a statement many times made that there is more liability to hemorrhage in partial removal than in total removal

Contra-indications are about the same as for any other small major operation The individual case must be studied in the presence of diabetes, renal disease or a non-compensating heart

It is not well to remove the tonsils in conjunction with some other major operation, such as one for tuberculous glands of the neck, as there is considerably more danger from bleeding after a prolonged anesthetic

When the temperature is above normal and cannot be accounted for it is better to wait

Tonsillectomy ideally done should not injure the singing or speaking voice, though a singer may have to learn to use the muscles as they are readjusted On the other hand, injuries to the pillars, velum or uvula during a tonsillectomy may ruin the singing voice and impair speaking

Status lymphaticus is an absolute contra-indication (if we could only diagnose this unfortunate condition clinically), as it causes more fatalities than any other one thing

Hemophilia is also an absolute contra-indication, but fortunately, it is a rare condition It can be definitely determined by blood examination if suspected from the patient's history Probably many cases of hemorrhage from the tonsils reported as hemophilia are prolonged bleeding from a vessel so cut that it cannot contract or retract

I have collected 11,245 cases of tonsils, or tonsils and adenoids in which the patients were operated on at the Manhattan Eye, Ear and Throat Hospital from September, 1906, to September, 1911 Most of these operations were done under ether anesthesia and out of this number two patients died from status lymphaticus, confirmed by autopsy, one patient died on the table, there was no autopsy, and the death was attributed to the anesthetic One had severe recurrent hemorrhages followed by pneumonia and death

Dr Frank S Mathews has kindly furnished me with the statistics from St Mary's Hospital for Children I might state that the method of removing the tonsil with the finger is followed there From 1900 to 1911 there were 3,702 cases of tonsillar operation with two deaths, one patient acting as if suffering from status lymphaticus, the other was but remotely due to the operation One hemorrhage was severe enough to require ligation of the external carotid

Of nearly 15,000 cases between the two hospitals with six deaths, it will be noted that not one was due to hemophilia Status lymphaticus caused three if not four of the deaths It might be well to refer to one patient in reference to hemophilia, who was supposed to have been a hemophiliac A boy, aged 15, was brought into the hospital one evening practically exsanguinated, he had had the surface of one tonsil sliced off about four hours before When he was carried to the ward and a tonsil clamp applied he vomited large quantities of blood

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6 Frissel L F Med Rec New York May 12 1906
7 Adler, I New York Med Jour March 1906
8 Beattie, J M Brit Med Jour 1906 ii 1781
9 Ingals, E F Laryngoscope September 1907 p 713
10 Rosenheim S Bull Johns Hopkins Hosp November 1908 Maryland Med Jour February 1911
11 Brown L Lancet London 1900 No 2, p 970
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The tonsil clamp did not control the hemorrhage and the house surgeon tried all the usual methods without avail The next morning I was notified The patient then had had several intravenous injections of normal saline, the radial pulse was imperceptible and the temperature was in the neighborhood of 102 F I ligated the external carotid which did not fully control the hemorrhage and later the house surgeon ligated the common carotid with a ligature that had been placed about that vessel to be used if necessary The mother of the boy was sent for so that a transfusion might be done but he died just before her arrival She said that the boy bled easily from any slight injury and had become very weak each time he lost one of his first teeth The autopsy revealed the stomach, small and large intestines distended with blood, but no injuries to the large vessels about the tonsil This case looks like hemophilia, and certainly death was due to primary hemorrhage

In conclusion, tonsillectomy is the one operation whenever the tonsils are diseased enough to demand surgical interference, and so far as hemorrhage is concerned it probably involves less risk than tonsillotomy

15 East Forty Eighth Street

REFINEMENTS WHICH RENDER TONSILLECTOMY SAFE, SURGICAL AND SATISFACTORY

M M CULLOM, A B, M D

NASHVILLE, TENN

On account of the situation of the tonsil, the radical operation for its removal is beset with certain difficulties and dangers It is the purpose of this paper to discuss the best methods of surmounting the difficulties and eliminating the dangers

The difficulties and dangers may be briefly enumerated as those arising from the anesthetic, the obscuration of field and embarrassment of respiration due to flow of blood and mucus, and the danger of hemorrhage Another difficulty lies in the adequate exposure and illumination of the field of operation These difficulties not only add to the danger of the operation, but interfere with the perfection and artistic detail of the work My ideas may be best shown by description of the instruments used and the method employed in operating In this operation I use a number of instruments of my own device The principle running through them all is the economy of space The maximum amount of room for the surgeon to work in, with the minimum amount of interference with sight and manipulation

Every step in this direction adds to the safety of the patient, the perfection of the operation and the comfort and satisfaction of the surgeon

Patients are prepared for operation by administration of a purgative the night before, generally castor oil is given The time of operation is preferably early in the morning, as children can be more easily tided over the breakfast meal without missing it so acutely

Half an hour before operation in adults, ¼ of a grain of morphin and 1/150 of a grain of atropin are administered hypodermatically In children, a dose is administered in proportion to their years In very young children only the atropin is administered The salutary effect of the morphin is apparent in quieting the patient, allaying fear, and rendering the anesthesia smoother, while the atropin helps to dry up excessive secretion which often complicates the administration of ether Then Crile's experiments have shown that the preliminary administration of atropin furnishes an element of safety in operations on the air-passages, by protecting the heart against reflex inhibitory impulses through the superior laryngeal nerve

The anesthetic used in all cases is ether Investigations and statistics have convinced me that ether is a safer anesthetic than chloroform and occasions less anxiety in the administration The sad chapter of accidents in connection with the administration of chloroform in adenoid and tonsil operations makes me feel that chloroform has no place in such operations For certain reasons gas has been found unsuitable in the tonsil operation

Gwathmey's experiments and writings have taught us the value of warm vapor in anesthesia, and for the past six months I have used it exclusively The apparatus I use is the Cain-McDermott, which I have modified to meet my ideas The apparatus consists of a bellows worked by foot-pressure which vaporizes the ether The vapor is driven through a coil of pipe enclosed in a metal receptacle containing acetate of soda This receptacle is immersed in boiling water for fifteen minutes before using and the soda salt will retain the heat for several hours The vapor driven through the heated coil is delivered warm to the patient

As sold, the apparatus is fitted only with a metal mouth-piece to be hung in the corner of the mouth The modifications I have made are the addition of a mask and nasal tubes

The patient is anesthetized to the point of relaxation by means of the warm vapor delivered through the mask When the patient is thoroughly relaxed the mask is replaced with nasal tubes and the operation is begun

I wish to say that my experience with warm vapor has been most satisfactory The patient is quickly under the anesthetic, the anesthesia is very quiet and in no case has the patient become cyanosed In using the metal mouth-piece I found that there was too great an admixture of air and it was hard to keep the patient under, then, too, the mouth-piece was in the way, but when I replaced the mouth-piece with nasal tubes there was no such difficulty The use of the foot-bellows is an advantage, as it allows the anesthetist the use of both hands to steady the head, raise the jaw and render the surgeon any assistance needed The use of the foot-pump is a great advantage over the hand-bulb of Pynchon which I formerly used More vapor is delivered by the increased force from the foot The squeezing of the bulb by hand is very tiresome and becomes real labor when the operation is prolonged I can only describe this apparatus as a comfort Even strong men are kept quietly asleep without the least trouble The surgeon can go calmly and carefully about his work without feeling the least necessity for hurry Used in this way it solves the problem of anesthesia in surgery of the oropharynx It is a great advantage to be able to operate uninterruptedly instead of having to remove the gag and wait while the patient is being reanesthetized

POSITION OF THE PATIENT

The patient having been anesthetized to the point of relaxation of the jaws, and being flat on the back, the head is lowered slightly, not very much, probably at an angle of 20 degrees At this angle the patient seems to breathe better and there is less likelihood of blood and mucus interfering with respiration The patient is flat on the back so that the assistant standing at the patient's left may be in a position to sponge and render such assistance as may be needed

EXPOSURE OF THE FIELD

The mouth-gag is next inserted, and I wish to say that a great part of the confidence I feel in this operation is due to the assistance given by the gag For some time I made use of the Brandt-Stubbs self-retaining gag and I wish here to acknowledge my indebtedness to it It has many splendid features but experience has shown defects which I have tried to eliminate The Brandt-Stubbs gag, which is the best of its type, has a tongue-depressor attached which is a very valuable feature The depressor practically takes the place of an assistant With the ordinary mouth-gag it is necessary for an assistant to depress the tongue With the surgeon working in the mouth it is difficult for the assistant to see just where to place the depressor and consequently that instrument slips first to one side of the tongue and then to the other, irritating the surgeon and making the exposure of the field unsatisfactory This depressor being attached to the mouth-gag holds the tongue at a fixed point, and exposes the entire field clearly to the view of the operator There is, too, one less assistant in the way of the surgeon

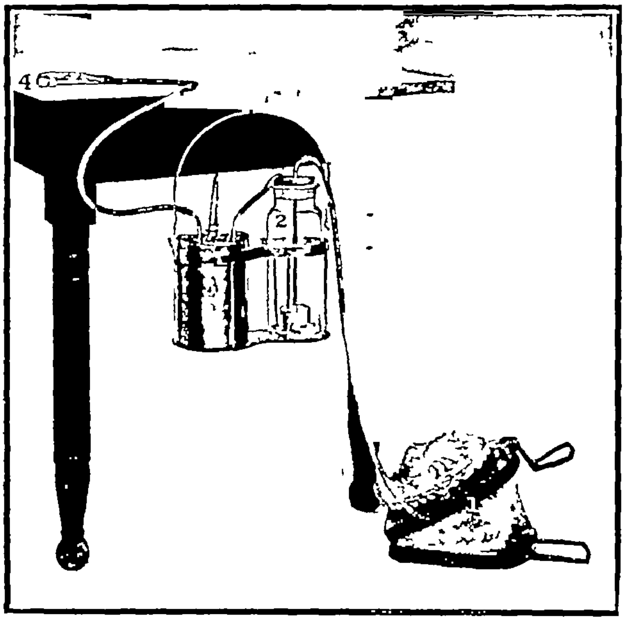

Fig 1 —Cain McDermott warm vapor ether apparatus. (1) Foot bellows (2) ether container (3) metal receptacle containing acetate of soda (4) mouth tube which writer has replaced with a mask to begin anesthesia and nasal tubes to continue the anesthetic after the operation is begun

The serious drawback to this gag is that the tongue-depressor is attached in the center and takes up a large amount of very valuable room The slot for the depressor interferes with the free sweep of the adenoid curet necessitating the removal of the gag and the substitution of another gag when removing adenoids The depressor being in the center crowds the tongue down on the larynx and sometimes causes interference with respiration A gag of this kind is hard to insert because the bite blocks do not come close together It is necessary to open the teeth an inch before this gag can be inserted The gag which I use has the tongue-depressor attached at the side The bite-blocks are fenestrated so that nothing is between the teeth This gives all the working space possible The bite-blocks fit into each other so that it is exceedingly easy to insert The tongue-depressor is adjustable having a lateral as well as a vertical adjustment This allows first one tonsil to be exposed and then the other The depressor can be attached or detached instantly This gag gives a perfect exposure of the field with all the working space possible Instead of crowding the tongue down on the larynx it exerts a lifting force on the base of the tongue and assists respiration

ILLUMINATION OF THE FIELD

One of the points on which I insist and on which I lay great stress is the proper illumination of the field I insist on the field being thoroughly exposed and at the same time thoroughly illuminated This is accomplished by wearing an electric headlight on the forehead

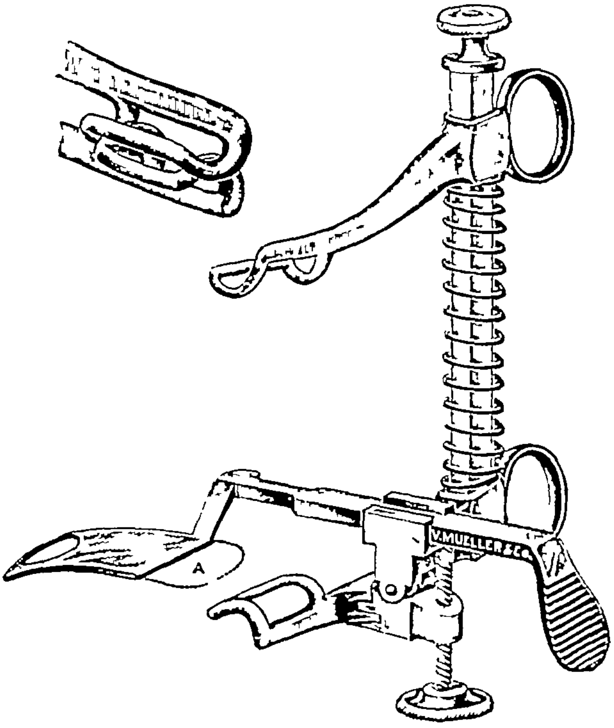

Fig 2 — Author's mouth gag.

ASSISTANTS

Two assistants in addition to the anesthetist are required One stands at the left of the patient on a line with the surgeon, and has charge of four sponge forceps The other stands just back of the first on the same side This assistant, usually a nurse, has an adequate supply of gauze sponges and it is her duty to receive the forceps containing the soiled sponges from the first assistant and replace them with fresh ones as fast as they may be needed

GRASPING THE TONSIL

The tonsil on the right side is seized with tonsil-forceps and lifted from its bed and its contour and attachments noted Often it will be seen that the superior margin of the tonsil is high above the junction of the pillars Traction will cause the outline of the tonsil to appear beneath the mu [illegible] mbra [illegible] l will serve as a guide to the dis [illegible]

The forceps used [illegible] en the idea running t [illegible] to interfere as little with sight and manipulation as possible The first essential in a good grasping-forceps is that they should take firm hold of the tonsil and not tear out with traction In order to do this it is necessary that they should have prongs instead of teeth Any toothed instrument will tear out of a friable tonsil Having the necessary firmness of grasp, the next essential is that they should occupy as little space and be as little in the way of eye and hand as possible In order to do this, it is necessary that the arms should be as slender as is consistent with strength, and when closed the two arms should present the appearance of a single arm Carter recognized this principle when he devised his tonsil-screw, and I wish to express my admiration and appreciation of it For a firm tonsil it is an ideal instrument but we must have something that will not tear out of a friable tonsil In order to give necessary grasping area the prongs take the form of a semicircle at the point where they come off from the arms This permits the two arms to come together like a single rod and at the same time gives the prongs plenty of grasping surface The arms of the forceps should be long enough to permit the hand grasping it to be out of the way The forceps takes the form of a pair of calipers This is an additional factor in space-saving, as the hinge joint is at the end instead of in the middle

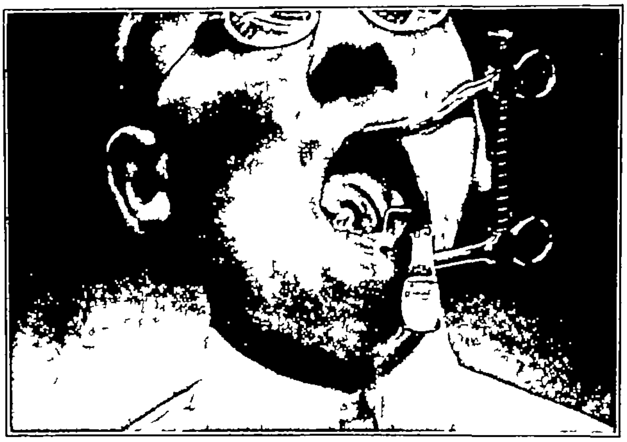

Fig 3 —Author s mouth gag in position in patient s mouth exposing left tonsillar region By means of its lateral adjustment it can be moved over and expose the right tonsil in the same manner The tonsil has been enucleated and the fossa has begun to fill with follicular tissue Note that there is no interference whatever with the working space in the mouth.

DISSECTION

The dissection is started at the anterior superior junction of the tonsil and the pillar The instrument used is the right-angled knife which I have devised from the Leland knife There are essential differences The blade is shorter I often found that the Leland knife was difficult to manipulate in the throat of a small child on account of the length of the blade The blade has a rounding sharp point instead of a sharp or probe point. A great convenience is having both blades on one handle, thus doing away with the necessity of laying down one instrument to pick up another and allowing the surgeon to keep his eye on the field, it also does away with the necessity of searching among the other instruments for the one wanted The dissection is for the most part a semisharp dissection The side of the blade is used as a blunt dissector when blunt dissection can be accomplished without too much force and traumatism When much force is necessary, I believe that sharp dissection is preferable As the attachments are severed it will be noticed that the tonsil gradually rises from its bed

When the dissection is complete the tonsil can be lifted from its position between the pillars and is attached only to the constrictor I have learned that the dissection is not complete until the tonsil can be dislocated in this manner Any attempt to remove it before this stage is reached will result in only a partial removal and will require a second effort The anterior pillar is first separated, then the supratonsillar attachments and lastly the posterior pillar During the progress of the dissection the blood is sponged up by an assistant as fast as it appears and the field of operation is kept clean Good exposure, good illumination and good sponging make every stroke of the knife visible and add greatly to our sense of safety and security When the right tonsil is freed from its attachment to the pillars and only remains adherent to the constrictor it is grasped with the forceps put on the stretch and severed with the cold wire snare As soon as the tonsil is removed the assistant thrusts a sponge on a sponge-forceps into the cavity and makes pressure till the first rush of blood is over

My tonsil hemostat is then applied and the dissection of the other tonsil is proceeded with The hemostat has an arrangement whereby the gauze pad can be adjusted instantly instead of having to be tied on as is the case with most hemostats. This enables one to save time when it is desired to apply it quickly and is a convenience at all times The application of the hemostat renders it unnecessary to wait until the hemorrhage has stopped, and allows the operator to proceed at once to the dissection of the other tonsil without loss of time The application of the hemostat shortens the operation, at least, five minutes

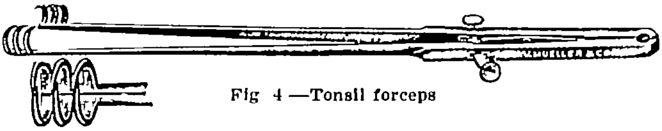

Fig 4 —Tonsil forceps

When the second tonsil is removed pressure is made with the sponge forceps until all hemorrhage is arrested The patient is not allowed to leave the table until the throat is dry The pillars are drawn back with retractors and carefully inspected for bleeding points, and to see if any tonsillar tissue has been left. If any remains, it is removed with the snare If after removal there is an apparent difference in the size of the two tonsils, it is well to search carefully, for it is my experience that after removal the tonsils are approximately the same size, however different they may appear while in the throat

I consider this operation safe for the reason that every stroke of the knife is made under the guidance of the eye The patient is under the anesthetic, absolutely quiet, the field is fully exposed and every stroke of the knife can be taken with the most painstaking care The thing most to be feared is hemorrhage If troublesome hemorrhage should arise we are in the very best position to cope with it The bleeding points can be located by sight and if it is an artery it can be grasped and ligated if necessary, or if it is a vein direct pressure can be applied.

WHY GIVE AN ANESTHETIC?

I believe that a general anesthetic should be administered in the first place for the mental and physical comfort of the patient. It is repulsive to most people to have any kind of manipulation in the mouth It generally provokes retching and gagging, which is unpleasant Then the mental effect of the cutting is terrorizing even if local anesthesia abolishes the real suffering This is from the standpoint of the patient From the standpoint of the surgeon the gagging and retching keep the tonsils and pillars in constant motion and increase the difficulty of grasping them and placing the incisions properly This is also an element of danger The necessity of spitting out the blood causes constant interruption In comparison with these difficulties the great ease with which one does his work with the patient completely under anesthesia imparts a sense of security and satisfaction that is comforting The surgeon can proceed calmly and carefully to his work undisturbed by these annoyances The blood can be mopped up and the hemorrhage limited by pressure with the sponges After removal, pressure can be maintained until the hemorrhage is stopped and the throat rendered clean and dry before the patient leaves the table Searching for a bleeding point in a pharynx that is moving rhythmically back and forth, accompanied by vomiting and spitting of blood, is very different from a pharynx that is absolutely at rest. Pressure can be applied, bleeding points seized, twisted or ligated, or the pillars sutured with ease Then again why should we withhold the blessings of general anesthesia from patients requiring this operation, when we extend it in so many operations requiring less time and having fewer unpleasant features?

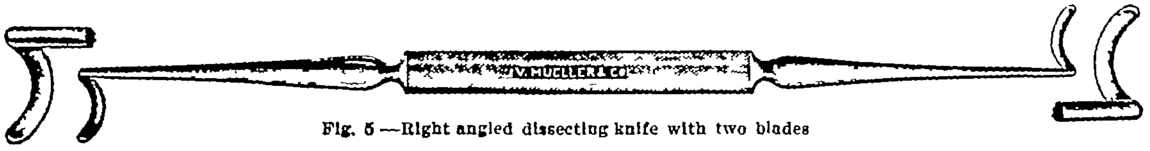

Fig. 5 —Right angled dissecting knife with two blades

HEMORRHAGE

In more than six hundred tonsils removed in this manner covering a period of two years only two cases of slight secondary hemorrhage have occurred I cannot attribute this entirely to good fortune, as with the guillotine operation there were always several cases of hemorrhage each year A further argument against the good luck theory is that this series of cases contained a large proportion of adults in whom we are taught to expect a much greater tendency to hemorrhage I attribute this freedom from hemorrhage in the first place to careful dissection in a fully exposed and illuminated field, unobstructed by blood or mucus, in the second place, I attribute it to the careful checking of hemorrhage by sponge pressure, grasping of bleeding vessels, and the invariable rule of having the hemorrhage completely arrested before allowing the patient to leave the table or come out from under the anesthetic This is not done in a perfunctory way but the pillars are drawn back with retractors and the cavity carefully inspected

ADAPTABILITY

I claim for this operation that it has the great advantage of being applicable to any type of tonsil and it is an advantage to have a single technic Any tonsil that can be removed at all can be removed in its entirety by this method and there will be no necessity of changing from one method to another after beginning the operation

From a haphazard carelessly executed procedure which any novice felt fully competent to undertake, tonsillectomy has been raised to the dignity of a surgical operation, demanding care, skill, judgment and experience The operation as formerly practiced was practically a leap in the dark The instrument was introduced the tonsil amputated and luck trusted to to stop the hemorrhage If the hemorrhage did not stop the operator was at a great disadvantage With the patient gagging and retching the bleeding point was difficult to locate and still more difficult to grasp or compress

The operation as I perform it requires from fifteen minutes to an hour The tendency to hemorrhage and the amount of dissection required is what prolongs the operation There has always been an idea prevalent among the laity that removal of the tonsil has a bad effect on the voice No effect was observed in this series of cases other than beneficial

In an interesting article on the results of enucleation in fifty-three cases, J H H Pearson[1] of the Royal Edinborough Infirmary reports an astonishing number of cases of deformity of the soft palate and pillars In only eighteen cases were the palate and pillars left without deformity There was marked asymmetry of the palate with deviation of the uvula from the middle line in nineteen cases, lowering of the soft palate on one or both sides in thirty-four cases

No such results as these were observed in my case In one case, a portion of one posterior pillar was removed and in another the uvula was amputated, but in no case was there observed any asymmetry of the palate I attribute this to the exceeding care with which the dissection is carried out, the tonsil being hugged closely at all times and every effort being made to spare the surrounding structures

There seems to be no way of preventing the fusion of the anterior and posterior pillars in the process of healing If we can find some way to carry out the suggestion of Hudson Makuen to leave the capsule intact, even this may be accomplished

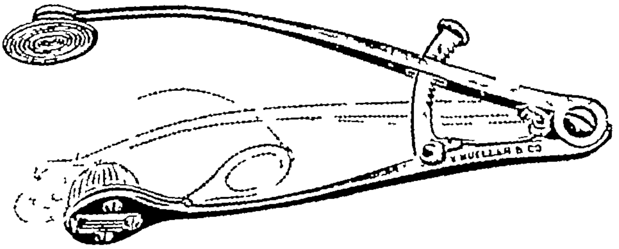

Fig 6 —Tonsil hemostat.

The oldest patient operated on was 55 years of age There was a large proportion of adults in the series It was not noticed that there was any greater tendency to hemorrhage in adults than in children

In the case of one adult I was notified two hours after the operation that some bleeding was taking place I returned to the hospital and found some venous hemorrhage from the supratonsillar fossa on the left side I applied the tonsil clamp, which stopped it at once There was no recur[illegible] of [illegible] bleeding

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1 Jour L [illegible]

In the case of a frail boy of 14, I was notified the next day that he had been spitting up blood I went to see him and found evidence of bleeding from the right tonsil, but no hemorrhage was taking place at the time I advised immediate removal to the hospital but the mother was averse and promised to send him at once should the bleeding recur They reported next day that he spat up blood at intervals till 5 a m, when it ceased absolutely He passed a quantity of dark blood by bowel and I am satisfied that he swallowed considerable blood It was noticed by all at the operation that the blood caught in the basin when the adenoids were removed showed absolutely no tendency to clot It ran around the basin like so much water and at no time gave any indication of congealing

This paper is not an attempt to exploit any particular method of dissection It is a plea for the surgeon to place himself under the most favorable conditions possible for performing the operation Judging by the dangers to be met, the difficulties to be overcome and the results to be accomplished, I believe that tonsillectomy is an operation worthy of our very best skill Let us spare no effort that will contribute to its perfection and no precaution that will add to its safety

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS CULLOM AND HURD

DR T C WORTHINGTON, Baltimore The complete extirpation of the faucial tonsil is now a well recognized therapeutic measure, and deservedly so I feel sure both from observation and from personal experience that the operation can be rendered one of comparative safety To accomplish this, the refinements of technic must be strictly adhered to in every case Safety requires constant caution My patients are never given morphin and atropin until on the operating table, and then only if there is reason to think that the ether will be resisted I do not administer these drugs to children The anesthetic is always in charge of a specialist in anesthesia or one well trained in this work Anesthesia is begun with nitrous oxid gas and oxygen, followed by warm ether vapor The instruments used are a special mouth gag which when in position rests on the anterior molars and which has a metal tube attached for the administration of the ether vapor, a tonsil knife slightly curved on the flat and very sharp (THE JOURNAL, May 25, 1907, p 1671), a slightly sharpened dissector, a special grasping and artery forceps, a pillar retractor and a tongue retractor Notwithstanding the use of an electric head light, the room is not darkened, so that the color and breathing of the patient may be easily observed

The functions of the posterior pillars are much more important than are the functions of the anterior pillars, and when they are wounded or torn there is usually a loss of symmetry in the pharyngopalatine arch This may result in impaired hearing or in alteration of the voice, in proportion to the amount of damage inflicted For this reason the tonsil should be separated from its posterior pillar and from the supratonsillar fossa with care and without force It should not be torn from its attachments Before the tonsil is entirely separated from above the artery passing down from the supratonsillar fossa and along the posterior pillar is clamped and later tied The other vessels are smaller and more easily controlled if the dissection includes only the tonsil with its enveloping capsular membrane, but this is not always possible There is usually very slight loss of blood during this operation, and there should be none afterward The after treatment consists of rest in bed for a few days with the use of all the ice or water which will be taken This is begun as soon as the patient regains consciousness The time consumed by a complete tonsillar excision including the anesthetic and the control of all bleeding and oozing, is from thirty minutes to perhaps an hour This difference of time is unimportant, because during the later stages of the operation the patient is getting almost no ether

DR JAMES T GWATHMEY, New York The safest and best time at which to operate is about one hour before the patient is expected to awake, especially for nervous children who are afraid of the operation It requires no special technic to put a child that is already asleep under the anesthetic, merely a sponge on an artery forceps, a few drops of chloroform, as needed, and ether when automatic respiration occurs This method is also good for weak children

By statistics of over 20,000 administrations, gathered from all over the United States, it is shown that one of the safest methods, safer than the gas ether sequence is the chloroform ether sequence This was a surprise to me and will no doubt be to you These statistics were not doctored but were sent in by the different hospitals Of course, in my own work I vary the technic according to the wishes of the different surgeons for whom I give the anesthetic When allowed to use my own preference, I start with some perfume, generally with one or two drops of the essence of orange, then chloroform, then change to ether It is the only odor stronger than that of ether Even if you do not want the chloroform ether sequence, you may start with the essence of orange In this way a quiet form of anesthesia is produced, which may then be continued with any special apparatus such as Dr Cullom's Dr Grayson has reported 3,800 chloroform anesthesias without a death I have had one experience, which though it did not terminate fatally, was alarming, and will last me a life time in chloroform anesthesia for a tonsil operation The chloroform ether sequence is, I think, very safe The gas ether sequence produces an engorgement and more hemorrhage than the chloroform ether method

No deaths have been reported with the essence of orange chloroform ether sequence nor have any deaths been reported from chloroform ether sequence in children The fatalities in early chloroform anesthesia have all been in adults and usually strong, robust men It is not necessary to hold a child that is reasonable in administering the essence of orange-chloroform ether sequence The change to ether should be very gradual as rapidity produces swallowing or convulsive movements If the warmed ether vapor as recommended by Dr Cullom produces no coughing or unpleasant sensations it is not necessary as a rule, to hold the child, but warmed vapor should be used continuously

The principle of operating under a continuous narcosis and with a bloodless field cannot be too strongly insisted on No man can do his best work hastily and with the field of vision cut off by blood The continuous narcosis also allows a last look to see whether or not there are any bleeding points

DR HOMER DUPUY, New Orleans For three years both in private practice and in my work at the Charity Hospital I have been employing heated ether in my operations, I commend the efficiency of this method In the first place, it produces absolute narcosis uninterrupted by the usual gagging when the simple cone is used, and it notably shortens the time of operation As I am sponsor for the Caine McDermott apparatus I must praise it In a four years' experience during which I was occupied in devising an apparatus of this nature, I must concede that the one shown by Dr Cullom meets every indication Dr Cullom failed to make the point that we must first begin anesthesia with the cone and after securing profound narcosis the apparatus is put into play This reduces the irritation that comes from direct contact of so concentrated a form of ether with the throat. In hundreds of experiences we have found that while the nasal attachment assisted materially when operating on adults, it is not so reliable in producing uninterrupted narcosis as that obtained by the mouthpiece I believe that this method of heated vaporized ether anesthesia greatly shortens the period of operation, reduces shock, and allows more time for the application of the delicate technic incidental to throat surgery

DR GEORGE L RICHARDS, Fall River, Mass When I sent out requests all over the world a few years ago concerning this subject, 90 per cent of the replies said that there was only one procedure in the way of treatment, and that was surgical I am glad to see less radical measures suggested for use in suitable cases The American Laryngological Association has begun an inquiry into this subject, the report to be made after three years, with the hope of arriving at something definite The subject of the physiology and pathology of the tonsil has been neglected by text books and investigators It deserves attention

DR F VICTOR LAURENT, Pittsburgh Tonsillectomy may cause a decided change in the voice. It will create a new condition of acoustics in the throat, and may change the quality and range of the voice It may make the voice larger and deeper but that is not necessarily an improvement Most people think the vocal cords are the only thing concerned in voice production, the position of the larynx is also of great importance—being low for the chest register, in a middle position for the medium register, and high for the upper register After a tonsil operation there is sometimes a slight constriction of the pharyngeal muscles concerned in the elevation of the thyroid cartilage This interferes with the motility of the larynx, marring the flexibility of the voice and making it more difficult to sing the tones of the upper register

DR B D SHEEDY, New York I have seen several cases in which the voice has been decidedly injured following careful enucleation of the tonsils I would advise our profession to be very careful about doing tonsil enucleations on singers One patient who came under my care after a tonsil enucleation reported that she had lost her means of making a living through the change in her voice following the operation Many patients have a slight nasal intonation of the speaking voice due to the contractions of the cicatricial tissue narrowing the opening into the nasopharynx.

DR. J H ABRAHAM, New York In 1900 I presented a paper before the Alabama Association on the subject of acute and chronic infections in which I contended that we were dealing with a septic condition requiring surgical treatment—slitting of the tonsils and removal of the caseous infectious material The difficulty was in getting down to the depth of its capsule In 1906 I did my first enucleation, a finger operation, since then I have been greatly interested in the radical' operation and have presented several instruments before this Section, about four years ago I presented a grasping forceps and artery forceps which have been greatly modified since The forceps I prefer has no teeth, but simply fenestrated blades

As to anesthesia, the other day I operated on a child, 5½ years old, it was the fourth operation he had had for adenoids and the third for tonsils Chloroform was administered in all of the above operations and it required one hour of hard work to revive the child in the last operation I prefer ether I always operate with the patient in the prone position I have for several years discarded intranasal administration of ether It may set up inflammation of the nasal accessory cavities, and I therefore prefer to give it through the mouth After the child is completely anesthetized, a curved cannula with proper connections is all that is required I have had several accidents with Dr Hurd's instrument for retracting the pillars and separating them, and am glad to see that he has modified it

DR. H W LOEB, St Louis If the physiology of the tonsil is not understood, the therapeutics, other than surgical, is absolutely a page in our work without a mark in the way of knowledge I have slit tonsils and burned them and made applications and the tonsillar trouble went merrily on It stopped for a while and then continued, I speak, of course, of the tonsils of adults It seems to me that Dr Cullom has presented a nice way of doing the operation, but I fail to see the value of such detail If I spend fifteen minutes to an hour to remove tonsils, I think it is entirely too long Whenever possible I commend the new plan of Sluder in which a series of instruments is not necessary .The operation is done with one instrument held in the right hand Those of you who will give it a trial will find the time of operation greatly lessened and the removal of the tonsils more effectual Warmed ether vapor may be all right, but there is grave doubt whether it can be warm under the usual method of administration

DR. W L BALLENGER, Chicago I wish to present in this connection my newer method of doing the Sluder operation The instrument is an angiotribe and a tonsillotome combined It has a dull blade with which the tonsil is clamped, before a drop of blood runs the tonsil is out of its bed and the angiotribe applied It can be left there any length of time and there will not be a drop of blood in the throat, after two or three minutes to allow clotting with the screw I force home the sharp blade which cuts off the tonsil It is free in the throat and taken out The sharp blade is turned back again, a spring is touched at the side of the instrument and the angiotribe is removed and the operation is complete

DR. FRANCIS P EMERSON Boston I do not wish to add to the technic of tonsillectomy or its indications in children, but would call attention to that type of tonsil in adults which is the cause of systemic conditions and which I think we are finding more frequently as we perfect our technic of examination that type of tonsil which we call the persistent infantile, degenerate or submerged tonsil As a portal of entry the tonsillar area is becoming more and more important as we study this class of cases in adults and we want clearly a definite indication when to remove them as Dr Hurd has said If there are systemic conditions in the adult such as myalgias, joint troubles, endocarditis or adenitis this area should be very carefully examined My point is illustrated by the case of a patient aged 56 who gave a history extending over eight or ten years, of slight sore throat combined with malaise, which he attributed to overwork In January he had a slight sore throat with soreness in the left shoulder, three weeks later an exacerbation of the throat trouble with lameness all over the body which was so marked that he was in bed three months unable to dress himself Two very able throat men had examined him and pronounced the throat negative His family physician after a very careful physical examination, including the blood and sputum, still believed that the origin of his trouble was in his throat and advised his coming to Boston On entering the office he walked like a man with severe lumbago In the throat examination there was no indication of inflammation of the mucous membrane the pharynx looked normal, but on retracting the anterior pillar on the left side and introducing an eustachian catheter there was expressed from a submerged tonsil a half teaspoonful of pure pus If you examine these cases in this way, retracting the anterior pillar, and expressing the contents of the tonsillar mass you will be surprised to find how many times what looks to be normal tissue is simply an enclosed abscess, these cases contain a large number of streptococci, which are capable of producing serious systemic conditions

DR C F WELTY San Francisco Tonsillectomy is the only operation that should be done on the tonsil The indications include hypertrophied tonsils which interfere mechanically, tonsils that have cheesy deposits buried tonsils tonsils that are associated with enlarged glands, peritonsillar abscess, recurrent tonsillitis and acute otitis media In every case of acute otitis media tonsillectomy and adenoidectomy should be performed at the time of the acute infection It should also be done in cases of acute exacerbations of heart trouble, rheumatism chorea, all cases of underweight, healthy in other respects

The mode of examination with the eustachian catheter is one of the best and you will often find indications for tonsil removal in this way which otherwise would not be suspected Patients who have recovered from acute tuberculosis should have their tonsils removed, because the germs remain in the tonsils as a reinfecting agent Bromid of ammonia administered by rectum in children under 4 is useful to keep them quiet after operation It is not necessary to have assistants All the operator needs is a nurse to hold the tongue depressor and I think the one I showed at the meeting last year is the best for the purpose

DR W W CARTER New York In the snare operation the instrument I devised a few years ago the spiral tenaculum for catching the tonsil will hold a friable tonsil better than anything else if engaged deep enough In operating on submerged tonsils it can be inserted into the small slit between the pillars and by pulling on the tonsil the full outline is shown I use the Seiler knife for separating the pillars and generally I do not have to cut at all for by traction with the spiral tenaculum the tonsil is lifted from its bed The Seiler knife is then inserted just behind the anterior pillar and the tonsil is pried out The snare is easily adjusted over the tenaculum (which is a small straight rod) and the tonsil removed with no injury to the pillars

Dr. H B Lemere, Omaha Many of our patients have submerged tonsils with infectious material deep in the crypts which will make its appearance only on expression I have found in the last three or four years that the use of Bier's cups on the tonsils is easy and efficacious, both as a diagnostic and therapeutic measure They are easily applied and in just such cases as Dr Emerson has referred to the pus can be drawn out and a bacteriologic examination made

Dr. Louis Ostrom, Rock Island Ill I have had a good deal of hemorrhage following tonsillectomy Frequently my patients have had a dry throat when they left the table but as soon as they woke up, cried and struggled they would begin to bleed I always instruct the nurse—and especially the mother who can be absolutely depended on—to watch the patient carefully as to swallowing and if there is a rate of swallowing faster than five times a minute to let me know at once

Dr. H F Pyfer, Norristown, Pa Methods of tonsil operation have had a slow progressive growth since we have discarded tonsillotomy Every year that I have been attending the American Medical Association meetings I have gone home with a handful of instruments that the leaders of our meetings have recommended as perfected and needed for a good dissection, but these instruments have in some way failed to do the work There were still occasional alarming hemorrhages, still retained portions of tonsils, still conditions to meet Ballenger has shown, in his book, the ideal tonsil dissection with the scalpel, but now he has retrograded to a quicker method, unquestionably safer and more accurate To my mind it is not the rapidity of the operation but the thoroughness and the care that should be the chief consideration Searching after many disappointments for an accurate, safe way of removing tonsils I found it when Lee Cohen of Baltimore devised his method of tonsil dissection With a modified tonsil knife he carefully dissected the tonsils from the pillars then retracted the pillars and picked up the numerous little bleeding vessels and tied them off after clamping them with a modified Jackson hemostat Occasionally I have found it necessary in cases of oozing to suture the pillars with catgut, using McReynolds' needle-holder and needles I can leave the patient without any fear of a hemorrhage following the operation The healing is prompt and painless The suggestion to wait until we have severe hemorrhage and then tie and suture is fallacious for physicians who wait for this time will discover that they have not sufficient surgical dexterity or developed technic to do the work and lives will be jeopardized if not lost by their bungling work Furthermore, no one knows how great the hemorrhage is going to be or how large a blood vessel is cut The instruments absolutely necessary for a safe tonsil operation are a half dozen Jackson hemostatic forceps any good dissecting knife and McReynolds' needle holder and needles

Dr G F Cott, Buffalo As to the employment of the Jackson hemostatic forceps just referred to, I want to say that Jackson does not tie, he catches the vessel and twists it I have done that a number of times and do not find it necessary to tie Dr Hurd states that four of his patients died from status lymphaticus Status lymphaticus, as an entity, does not exist and so patients cannot die from it There is a condition of poison which causes the trouble We must extricate ourselves from the long and well beaten path of tradition without fact If you ascertain the cause of so called status lymphaticus and attack that, your patient has a good chance to recover

Dr. G W Mackenzie, Philadelphia Apropos of the physiology of the tonsils, I do not know just how many physicians here practice the systematic examination of the lingual tonsil A year or so ago I had several cases referred to me by general practitioners complaining of spasmodic croup with the request that I remove the tonsils, hoping thus to cure the attacks I removed them as thoroughly as I knew how but the croup continued and in some it was increased I was surprised to find that in a number of these children in which the tonsils had been removed subsequently there was enlargement of the lingual tonsil We should examine these cases more thoroughly before operation and take into consideration the whole of Waldeyer's ring

Dr. B R. Shurly, Detroit It seems to me that it is necessary that certain definite principles of procedure in the operation should be thoroughly carried out by all of us who are interested in this work One is, to my mind, the question of anesthesia I feel that it would be a great mistake to allow the discussion to convey the idea that it is correct to use chloroform anesthesia in any of these operations, at any stage of the operation or at any time It certainly seems to me to have been definitely decided that we have but one safe anesthetic for this work, that is ether We talked about that for twenty years and we should stick to our conclusions in the matter

Dr Homer Dupuy, New Orleans This Section can hardly go on record with the statement unchallenged that we cannot produce warm ether vapor In the Cain McDermott apparatus we first vaporize the ether and as such it is passed through a heated coil, acetate of soda being used, when it is heated in this last receptacle, from which it is carried warmed to the mouth or to the nose of the patient It is merely a question of physics and we must admit that ether can be vaporized and heated

Dr M M Cullom, Nashville, Tenn In reply to Dr Loeb's question the time referred to in the paper means the entire time from the beginning of the anesthesia until hemorrhage is stopped and the patient is removed from the table I have found by accurate timing that the average time for inducing anesthesia in children with warm ether vapor is four minutes and in adults eight and a half minutes The anesthetic was not pushed, but the anesthesia induced gradually If the anesthetic is "crowded" the time can be reduced considerably The actual time of operation from the insertion of the gag till the removal of the second tonsil averages eighteen minutes About five minutes more is required to check the hemorrhage from the second tonsil

Dr Lee M Hurd, New York Prolonged ether anesthesia seems to increase the liability of hemorrhage The singing voice will not be injured by tonsillectomy if perfectly done, but a faulty technic with injuries to the structures about the tonsil is more than likely to injure the voice Rheumatic conditions do not necessarily have to be preceded by an acute inflammation of the tonsil It can very well be due to a tonsil that would not attract the attention of the unobservant.

I agree with nearly all the indications but it must not be overlooked that acute suppurative otitis media can be due to infected nasal sinuses In regard to the anesthetic, in two of the cases of death from status lymphaticus ether was used, if chloroform had been the anesthetic it would have been blamed for the result, chloroform may be more poisonous in status lymphaticus but ether is also dangerous

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CHRONIC LARYNGEAL STENOSIS, TREATMENT BY PROLONGED INTUBATION

HOMER DUPUY, A M, M D

NEW ORLEANS

The many difficulties which encompass us when dealing with chronic laryngeal stenosis will test to the utmost the patience, foresight and mechanical ingenuity of the surgeon Months, and even years, may be required in overcoming the obstruction My experience confirms that of other observers relative to the greater frequency of this stenosis in children This one factor adds materially to the problem *per se* for there are also local and regional difficulties which present themselves in the treatment of this condition The instability of the muscular and nervous mechanism of the larynx, incident to prolonged yet unavoidable pressure of an intubation tube, renders this organ all the more susceptible to intercurrent and sudden adductor spasm of the glottis Fright and want of self-control, then, are the elements in these young subjects which may readily precipitate such a crisis as adductor spasm The method of overcoming this obstruction must necessarily hinge on our conception of its causation and its pathology

In the light of such evidence as is furnished by a notable contribution from J Rogers, Jr,[1] and by six cases which I report in this paper O'Dwyer's dictum, that retained tube cases are the direct result of traumatism induced by faulty intubation, is no longer acceptable It is timely to recall that in pre-intubation days chronic laryngeal stenosis in children not infrequently led to long retention of the tracheal cannula While the literature on this subject is very meager, at least in recorded experiences, the greater number of observers are unanimous in their conviction that, in children more particularly (excluding the presence of papilloma, of granulations and cicatricial changes around a tracheal cannula), hypertrophic laryngitis with a focusing of the hyperplasia in the subglottic region is the logical explanation of this form of stenosis While the original affection necessitating intubation may be diphtheritic, the more permanent and deep seated exudative inflammatory changes are scarcely to be attributed, in these days of serotherapy, to a continuous and active diphtheritic process The original infection may have spent its force while the exudative alterations continue and they must be regarded as a sequel of diphtheria Why such uncommon tissue changes should follow in the wake of diphtheria in such a comparatively small number of proved laryngeal diphtheritic infections, and not in others, remains unanswered On the other hand, it is proper to reiterate and reinforce the statement that while diphtheria, by microscopic and clinical evidence, has been proved the undoubted cause for these stenoses, there is indisputable proof that diphtheria should not always bear the brunt of the blame In my series of six retained-tube cases in only one instance did the microscope give a positive result as to diphtheria

The cause of these obstructions was forced on me in two instances (Cases 2 and 3), when by a direct inspection through a tracheotomy wound a diffuse infiltration with a velvety appearance was plainly seen to occupy the subglottic region and that portion of the trachea which is encircled by the cricoid cartilage In these areas there was a marked narrowing of the lumen of the respiratory tract Further confirmation of these phenomena was obtained by performing intubation The tube readily passed the glottis, but invariably encountered resistance in the subglottic region

To O'Dwyer belongs the credit of first suggesting that long-continued dilatation by means of intubation tubes offered a reasonable prospect of success in this condition Gradual, systematic and continuous dilatation with a special intubation tube, one having a low retaining swell, or with a tube having a silver pin attachment for permanent fixation, have proved, in my experience, distinct advances in the treatment of this stenosis It is a common experience that in hypertrophic laryngitis, with a subglottic stenosis, the ordinary intubation tube seldom remains *in situ* for more than twenty-four hours Dangerous auto intubations continually threaten to thwart our best efforts Tracheotomy is frequently, but improperly, resorted to for this very reason But it is usually inadequate and only retards the final cure About six years ago Dr L De Poorter and myself devised a set of metal tubes with a low retaining swell We called these our 'fat tubes" This retaining swell is so placed that it impinges on that portion of the subglottic and tracheal areas which are the usual seat of the constriction so frequently associated with hypertrophic laryngitis This "fat tube" certainly reduces the possibility of auto-extubations and, moreover, effectively carries out the all-essential principles of dilatation Should this fail us, the fixed intubation tube holds out a promise of success It is a hard rubber golden lined tube with a perforation on its anterior surface at about its lower middle third A screw pin fits in this perforation An incision through the trachea, the tube being properly placed in the larynx, gives access to the perforation for the fixation of the pin The line of incision is then closed above and below the pin Permanent fixation is thus secured Rogers first devised the pin and tube attachment made of hard rubber This pin swells in the tube and is removed with difficulty I have practically overcome this objection by substituting a silver screw pin in a hard rubber tube This tube can be easily removed to meet the various indications and if replaced within a short period it will be feasible to screw it in without further surgical measures

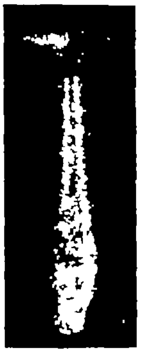

Fig 1 — Dupuy De Poorter low retaining swell intubation tube

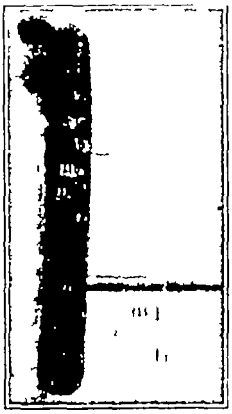

Fig 2 — Intubation tube with silver pin for permanent fixation in the larynx.

The sum of my experience, excluding a patient under treatment, totals six cases One case was of syphilitic origin, one was due to diphtheria, in three instances cultures were negative as to diphtheria With the exception of one adult, my subjects were under 3 years of age There were four successful outcomes and two deaths One failure, Case 3, resulted from an avoidable accident, the other, Case 2, from an intercurrent broncho pneumonia The periods of intubations extended for from one month to one year

Case 1—Jones F, aged 30, presented a syphilitic laryngeal stenosis which occasioned a very distressing and increasing dyspnea The cicatricial contractions reduced the glottis to a mere slit Under cocain anesthesia a No 8 metal intubation tube of the Farroud set was with some difficulty introduced The tube gave the required relief and remained *in situ* for about a week when a specially constructed rubber tube, with a rubber pin for permanent fixation, was introduced An incision over the trachea, the tube in position, gave ready access to the perforation in the tube The line of incision was closed above and below the pin This tube was only removed about a month later Dilatation was sufficient to allow comfortable breathing. Further to insure this good result the larger size metal intubation tubes were introduced without fixation for another month and then extubated. The patient, seen one year after dilatation, had experienced no further trouble. The usual systemic treatment was resorted to during and after the intubation period.

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[1] Rogers, J., Jr Chronic Obstruction in Larynx and Trachea, Am Jour Med. Sc., November 1907.

Case 2.—Myrtle M., aged 12 months, was referred by Dr. John J. D'Aquin, and intubated by me for increasing and persistent dyspnea. For a period of twenty days several extubations and three auto extubations necessitated immediate reintubations. On the twenty fifth day after the first intubation the removal of the tube was followed by normal breathing for twelve hours. The obstruction, however, recurred at the thirteenth hour, requiring a reintubation. A low tracheotomy was determined on to safeguard life in the event of auto extubations. For one year with the tracheal cannula in position systematic dilatation by tubes progressing from the No. 1 to the No. 3 (Farroud set) was the method of procedure. This finally secured sufficient dilatation to allow free breathing without the tracheal cannula and intubation tube for a period varying at first from a few hours to almost twelve hours. Even under these apparently favorable conditions the cannula was always replaced when she left the office as a protection should the stenosis occur during the night. When the victory seemed certain bronchopneumonia intervened with a fatal issue. The microscope negatived the possibility of diphtheria. The persistency of the dyspnea, fixed in its degree, and the absence of paroxysmal attacks of impending suffocation, strongly suggested chronic hypertrophic laryngitis as the cause of the trouble.

Case 3.—Clarence F., aged 2 years, came to me wearing a tracheal cannula. For several months futile attempts had been made to remove the cannula. The little patient then came under my care at the Hotel Dieu. On enlarging the wound of the trachea a distinct infiltration was disclosed in the subglottic region. I at once introduced a hard rubber gold lined No. 2 intubation tube (O'Dwyer) securing permanent fixation by means of a silver pin screwed into the anterior surface of the tube itself. The tracheal wound was closed above and below the pin. The fit seemed perfect and the child breathed through the tube without difficulty. This tube was not disturbed until after four months. Its removal showed that considerable dilatation had been effected but it was not sufficient for normal respiration. A larger tube, a No. 4, with the silver pin contrivance, was placed in position. Baby Clarence was frequently overfed. Though on a liquid diet the vomiting of curdled milk with particles entering the tube caused several attacks of bronchopneumonia. He always tided over these accidents. But here again when just in sight of victory a night nurse overfed him and while in a supine position he vomited curdled milk. The tube was suddenly occluded and Clarence died before the intern could render assistance. The history and the inspection of the parts through the tracheotomy wound pointed to undoubted infiltration in the subglottic area and in the upper limits of the trachea just above the cricoid.

Case 4.—Robert H., aged 3, was referred by Dr. J. W. K. Shaw, of New Iberia, La. Suprasternal and diaphragmatic tirage called for mechanical help. The insertion of a No. 2 tube (Farroud) immediately relieved the dyspnea. It required one month to overcome the stenosis. About ten extubations and reintubations were practiced before obtaining the final results. After extubations the patient would sometimes breathe perfectly for several hours, after which the progressive but certain return of the stenosis made reintubation imperative. The negative microscopic findings as to diphtheria, the slow onset and the very gradual increase in the dyspnea after extubations, the absence of those rapidly induced paroxysms or threatening asphyxia, seemed to argue that here again was a case of hypertrophic laryngitis.

Case 5.—(Reported by Dr. J. G. Hirsch, intern, Charity Hospital, New Orleans.) J. R., white, male, aged 1 year, was referred to the Charity Hospital for laryngeal diphtheria, with impending asphyxia. Intubation was done successfully by house surgeon Danna. Cultures were negative. On admission 2,000 units of antidiphtheria serum were given. Three days after insertion of the tube auto extubation occurred. He was reintubated and 2,000 units of serum were given. Two days after last intubation another auto extubation occurred which required reinsertion of the tube within an hour. Ten thousand units of serum were administered. The third auto extubation happened in twenty four hours and the tube had to be reinserted. Six thousand units of serum were injected. The tube was coughed up within forty eight hours, but it was swallowed by the patient and was passed two days after by rectum. Tracheotomy was performed by assistant surgeon Stafford and the cannula was removed after ten days. The patient seemed to be improving when a return of the dyspnea on the fourth day necessitated a second tracheotomy which was done by assistant surgeon Cole. Bronchopneumonia followed. Dr. Dupuy was called in consultation. He reintubated with a special metal tube with a low retaining swell. The tracheotomy wound was allowed to close. The tube was not coughed up during a period of three weeks. It was removed several times for cleansing purposes and to test the degree of dilatation in the respiratory tract. After final removal of the tube the child was kept under observation for some weeks, and as it breathed perfectly well was discharged cured.

Comment.—Uninfluenced by a large dosage of antitoxin and cultures negative, this case appeared to be one of hypertrophic laryngitis. The tracheal cannula was abandoned as it did not promise to overcome the actual stenosis.

CONCLUSIONS

1. An affection presenting the distinctive features of exudative inflammatory changes with a narrowing of the respiratory lumen in the subglottic and upper tracheal areas, in most instances is the essential cause of persistent laryngeal stenosis in children. This is what we consider as a pathologic entity in itself and the term hypertrophic laryngitis expresses its chief feature. It must, however, be considered as an end result of some active inflammatory process which may be of diphtheritic origin. But some other cause non-diphtheritic in character may also prove the essential factor.

2. In children prolonged intubation with a special tube (one with a low retaining swell), using the largest tube possible for the age of the subject, offers in the present stage of our knowledge the best prospects of success in overcoming the stenosis.

3. If repeated and dangerous auto-extubations occur in spite of the use of the special tubes, the fixed intubation tube, made of hard rubber and gold-lined, offers the best safeguard.

4. This hard rubber tube for prolonged intubation is preferable for the reason that incrustations do not occur around the tube and the possibility of ulcerations of the parts, due to contact, is minimized.

5. Tracheotomy not only fails to effect mechanical dilatation in the constricted areas, but it actually invites tracheal cicatricial changes and deformities which will only complicate matters and drive us from Scylla to Charybdis.

ABSTRACT OF DISCUSSION

Dr. H. L. Lynah, New York: I have had experience with these cases covering a period of eight years, and I read a paper on the subject last year and one again this year. The different types I classified as follows: First, the type in which there is a nervous spasm before the tube is removed from the larynx, holding the tube as in a vise, and making extubation extremely difficult, when the tube is finally removed there is a violent spasm and immediate intubation is necessary. Second, the spasm type without nervous element. This is due to the long continued wearing of the tube, the tube virtually acting as a splint to the intralaryngeal muscles, holding them in a state of fixation or functional disuse. The abductors being held apart so long a time, the balance of power is exerted by the opposing set of muscles, which promotes adductor spasm Third, the polypoid type, which occurs at the base of the epiglottis and ventricular bands These polypoid outgrowths fall together as the tube is removed and immediate reintubation is necessary This type simulates the spasm type In these three classes the dyspnea is inspiratory, but can be overcome by general anesthesia, only to return when the patient awakens Fourth, the hypertrophic subglottis type In this the stenosis is slow and gradual, accompanied by both inspiratory and expiratory dyspnea, and sooner or later intubation is necessary This contraction usually occurs at the cricoid level but may involve the entire lumen of the larynx. Fifth, the cicatrix type, due to traumatic or surgical interference To add a cicatrix to the already complex pathology is most certainly not the proper procedure in the treatment of these cases, and laryngotomy or tracheotomy should not be performed, for the scar when contracting may pull one vocal cord below the other, and the voice may be lost from failure of approximation of the cords Lastly, the atrophic type, which occurs in cases treated by prolonged dilatation and in which thick sticky mucocrusty masses obstruct the larynx Here intralaryngeal medication is of benefit, but is of no use in the treatment of the other types The primary cause in these cases is the severity of the diphtheritic lesion, which prolongs intubation and this, in turn, produces ulceration, necrosis and sloughing of the cartilage The firm cartilaginous larynx at the cricoid is now converted into a collapsible tube Now Nature endeavors to regenerate these areas with fibrous connective tissue, and the cartilage is replaced by new bone formation with projections into the lumen of the larynx The recurrent laryngeal nerves in these cases are absolutely normal, there is no paralysis of the vocal cords Dilatation, not laryngotomy, is the only proper treatment for these cases of chronic laryngeal stenosis

DR. B R SHURLY, Detroit In a long experience, which includes more than 500 intubations for diphtheria, it has been my misfortune to treat seventeen cases of prolonged or retained intubation tubes We should make a definite classification between prolonged and retained tubes It was not uncommon in the older days, before we had antitoxin, to see prolonged intubation tubes, those that are required perhaps for more than a week It is customary, of course, to remove them on an average four days after intubation In these seventeen cases which were diphtheritic in origin, sixteen patients recovered and one died, the latter was discovered dead by the mother in the morning, she had slept through the night and the tube was found under the bed, so that result was due to carelessness in nursing The other sixteen recovered by the use of saturated alum applied to the tube We should classify these cases carefully, and that has been well done by Dr Lynah I cannot agree with Dr Dupuy in not giving consideration to traumatism as a very frequent cause of the prolonged intubation tube A number of these cases occurred in the days when we used metal tubes, which were certainly followed by injury to the larynx They were attended with much more danger to the larynx in the way of traumatism Some of these cases, too, are subjected to the most humiliating lack of skill in passing the intubation tube It is not surprising, therefore, that we should meet with injured larynges from bad technic and lack of special knowledge and experience which is difficult to obtain at present. There are so few cases now that there are very few experienced operators left in the field The entire matter revolves around the earliest possible relief when symptoms of stenosis are beginning The earlier the treatment the more certain and perfect will be the results

DR. EMIL MAYER New York Dr O'Dwyer's tubes are as perfect to-day as they were when first presented Any single change from the O'Dwyer tube, for the conditions for which they were designed results in the worst effect one can imagine O'Dwyer himself found occasions in which some other size or shape might be necessary, but that is only in the exceptional case As Dr Shurly has said he had seventeen cases out of 500 thirty four in a thousand that required something else besides the ordinary tube Something had to be devised and everyone who has made a study of the subject can show tubes of almost all shapes I have in my possession a tube that is perfectly round except at the head which was used in a case in which the whole interior of the larynx had been taken out A retaining swell may be made in any position, and I have no doubt that such a swell in the lower part of the tube may be of advantage in some such case as is referred to by Dr Dupuy As to the origin of the diseased condition I think it will be found on careful examination that the condition is diphtheritic in every single instance There are of course, other causes of stenosis I have presented here before this Section the case of a soldier who was in the Spanish American war, in which a bullet entered the eyebrow, came down through the maxilla struck the thyroid cartilage and then dropped into the esophagus, passing out through the bowel He had a hole in his soft palate, which was the first suggestion that stenosis of the larynx might have been caused by the wound This patient was treated by intubation with ultimate cure Another cause is posttyphoid perichondritis and another a rhinoscleroma

DR HOMER DUPUY New Orleans O'Dwyer's tubes certainly answer every indication in acute stenosis of the larynx in children and we who enjoy the precious heritage of this contribution should not change the diameter and shape of these tubes one iota, but in hypertrophic laryngitis with a subglottic stenosis we have to meet special conditions and the fixed tubes and those with the low retaining swell seem to offer the best safeguards in averting dangerous auto extubations they moreover by procuring dilatation offer the best prospects for a final cure In adults laryngostomy may be applicable It is too long and tedious to be applicable in children I did not touch on the question of bony changes because my cases did not show in my opinion such profound alterations I believe that it is only after a period of three or four years that a chronic stenosis of the larynx shows these bony end results, up to the second and third year they should be regarded as purely fibrous infiltrations

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THE DILATATION OF BRONCHIAL STRICTURES

NOTES ON THE CLINICAL PATHOLOGY OF BRONCHIARCTIA

CHEVALIER JACKSON, M D

PITTSBURGH

Bronchial stenoses may be divided into functional and organic The organic stenoses comprise a number of widely different lesions, but it is only cicatricial stenosis that will be considered in this paper The chief causes of cicatricial bronchial stenosis are traumatism, syphilis and tuberculosis, or perhaps more accurately the secondary infections complicating these lesions Tuberculous processes are of such slow progress, as a rule, that the lung accommodates itself to the altered conditions, and cicatricial bronchial stenoses secondary to tuberculosis rarely require local treatment, though they occur as the result of erosion through the bronchial wall, and I have seen six such cases Cicatricial stenoses in some instances, may require dilatation in order to secure proper drainage of the infrastrictural bronchiectatic cavity, and thus cure the patient of bronchiectasis with its distressing cough, foul expectoration dyspnea and lesser symptoms For syphilitic strictures it may be necessary to use prolonged intubation with bronchial intubation tubes put in place with the aid of the bronchoscope and left *in situ* for a period of from one to seven days The tube should be left for a few hours in case of daily removals, or a few days in case of weekly removals Extubation is performed with an extubator used through the bronchoscope In order to obtain a sufficient lumen for the insertion of the intubation tube, a laminaria or tupelo tent may be used, placed *in situ* with my instrument for the purpose The tent is open to the objection that it obstructs all drainage for the time it is in place though this need for only a few hours Divulsion, as hereinafter described, is the best method by which to obtain a sufficient lumen for intubation, and even if some trauma results from divulsion, cicatricial tissue is not readily infected by the organisms present, to which the patient is already more or less immune

In cases of traumatic cicatricial stenoses, such as follows the prolonged sojourn of a foreign body in a bronchus, I believe the best result for gaining access to the foreign body are obtained with my divulsors (Figs 1 and 2) For the treatment of the stricture after the removal of the foreign body, if such treatment is ever necessary, these same instruments would probably serve equally well, but of this I cannot speak from experience, because in my cases of cicatricial stenosis following the most prolonged sojourn yet recorded of a foreign body in a bronchus (seven and ten years respectively), the patients entirely and completely recovered from all symptoms, including the septic symptoms and the cough The expectoration lost its odor and purulent character and then ceased altogether, the patients regaining robust health, so that there was no occasion for after-treatment of the stenosis In both of these cases, the strictures were firm and rigid and of very small lumen The following is a brief summary of the history of two cases of bronchial stricture treated by divulsion

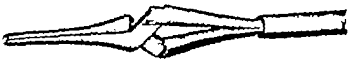

Fig 1 —Small dilator for bronchoscopic dilatation of bronchial strictures The dilator is actuated by the author's universal forceps handle.

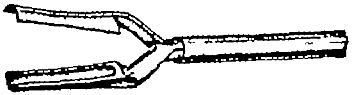

Fig 2 —Larger dilating forceps with a channel in each member, so as to furnish a canal when the dilator is closed for insertion

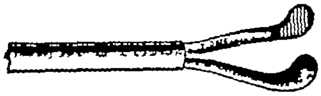

Fig 3 —Forceps jaws curved on the edge

CASE REPORTS

CASE 1 —B G, a boy, aged 18, small, frail and undeveloped for his age gave a history of pneumonia eight years before (1903), followed by pleurisy and empyema, which one year later (1904) was tapped and drained Only a very small amount of pus was obtained and drainage during three months was very unsatisfactory Temporary improvements were followed by relapses Chills were attributed to a supposed malarial infection while living in Virginia One of the most eminent internists in the United States diagnosticated pulmonary tuberculosis, since which time treatment has been chiefly climatic, by residence in Arizona The boy never regained his health sufficiently to dispense with a nurse He was frail, under sized and pigeon breasted He suffered continually from cough, usually with purulent sputum, frequently pink stained, and occasionally of foul odor He had low, irregular temperature elevation very suggestive of tuberculosis, but sputum examination was always negative

Report of Physical Examination (by Dr James I Edgerton and Dr John W Boyce.)—Patient is underweight, pigeon breasted, and has marked dextrocardia, apices free from disease Physical signs are confined to base of right lung Low down posteriorly, and extending to edges of lung, both breath and voice sounds were increased with a suggestion of amphoric breathing and whispered pectoriloquy No change in percussion note We are unable to demonstrate either tympany, cracked pot note or Wintrich's change of tone when mouth is open.

Such was the history and condition of the patient when taken to Dr James I Edgerton of New York Unlike his predecessors, Dr Edgerton did not conclude that all the physical signs were attributable to the secondary changes, following the supposed empyema of eight years before, and sought the aid of Dr Lewis Gregory Cole, of New York City, who located with wonderful accuracy by radiographic triangulation, a portion of a lead collar button midway between the angle of the scapula and the spine, 2½ inches from the posterior wall of the chest The collar button consisted only of a base and post, without a top, giving the appearance of a rivet as seen in the radiograph (Fig 6)

Operation —The parents remembered that the child had "choked" ten years (symptoms eight years) previously on the collar button, and they had reiterated their suspicion that the collar button might be the cause of all the symptoms, and in recent years they had even requested that a radiograph be taken But the scoffing at lay opinions had silenced them Dr Edgerton brought the boy to me and at the Eye and Ear Hospital I removed the collar button through the mouth by bronchoscopy The ten years' sojourn had produced some interesting pathology On passing the bronchoscope through the larynx, a large quantity of very foul, blood stained pus was continually being coughed up from below This coughing could, of course, have been stopped by deep general anesthesia but the cough reflex was preserved under slight ether anesthesia as an invaluable aid in ridding the lower air passages of the foul secretion, which obscured everything Swabs on long carriers were introduced and passed through and beyond the distal end of the bronchoscope Then when the cough had filled the lower 2 inches (approximately) of the bronchoscopic lumen with secretion, the swab was drawn into the bronchoscope and thus the thick fluids were drawn out by positive lift, as an ordinary water pump acts on the water that is above the plunger After the fluid was removed from the trachea in this way, it was easy to see that the pus was coming from the right bronchus This tube was pumped out and then it could be seen that almost all the right bronchus was a bronchiectatic cavity with a cicatricial bottom, at the right edge of which was a small strictural opening, about 2 mm in diameter A cicatricial web occluded about two thirds of the bronchial lumen just above the stricture and this web at its right end curved downward forming part of the edge of the stricture The apertures of the upper and middle lobe bronchi seemed more than usually oval in outline, though of this it was difficult to be certain, and the time could not be spared for careful examination, since it was practically certain that the collar button was below the stricture, which therefore *must* be dilated The dilator (Fig 1) was passed and readily entered the lumen of the stricture The divulsion to

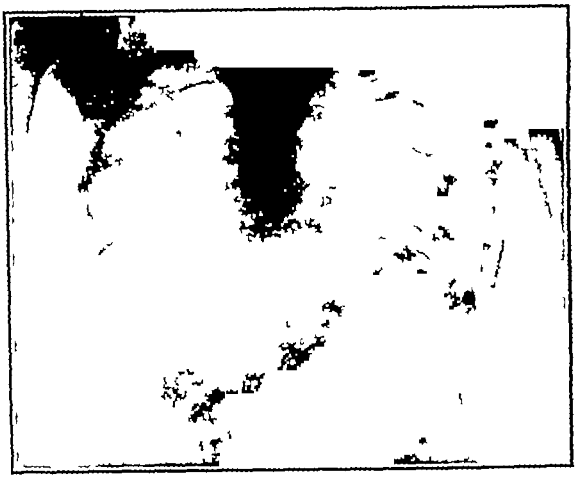

Fig. 4 —Radiograph by Dr Willis F Manges showing price tag fastener which had been in the right bronchus seven years. Removed through the mouth by bronchoscopy after bronchoscopic dilatation of the bronchial stricture

the full extent of the forceps (1 cm) did not require great force. After the withdrawal of the small dilator, the large dilator (Fig 2) was introduced and expanded and allowed to remain *in situ* for a few minutes Next, the cavity below the stricture was wiped out with small bronchoscopic swabs Basing his judgment on the fact that the physical signs as above given were below the point at which Dr Cole located the foreign body, Dr Boyce advised me that the collar button would be found at the top and not the bottom of the abscess cavity Acting on this advice, a small patch of granulation tissue was found immediately under the overhanging left edge of the dilated strictural opening During exploration of this granulation tissue with the jaws of the forceps (Fig 3) the collar button was felt and removed At the first attempt, the tip of the post of the button came away, permitting the removal of the balance of the button (Fig 7) edgewise The boy returned to his home a few days later, and four months afterward, entered college in perfect health, free from cough and expectoration or any remnant of the old condition. One year after the operation, he was sound, healthy and normal in every way

Case 2—Mary N, aged 23, was seen in consultation with Drs J Solis Cohen, D Braden Kyle and Tello d'Apery The patient gave a history of continual cough and foul yellowish expectoration for about a year and a half, during which time she had an irregular temperature elevation and had lost weight For seven years she had been subject to severe cough with expectoration during the winter, these symptoms disappearing in summer The diagnosis of pulmonary tuberculosis had been made by a number of physicians The foregoing is in brief the history she gave on admission to Jefferson College Hospital.

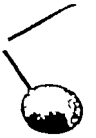

Fig 5—Price-tag fastener lodged for seven years in a lung of a girl aged 23 years. Removed bronchoscopically through the mouth after dilatation of the overlying bronchial stricture Only one branch wire shows because the two were in line

Radiographic Examination—Dr Solis Cohen in consultation with Dr d'Apery found both apices free from disease The only abnormal physical signs were slight impairment of resonance at the right base, with diminished voice and breath sounds As these, in his opinion, did not sufficiently account for the symptoms, he referred the case to Dr Willis F Manges for radiographic study Dr Manges in a beautiful stereoscopic radiograph (Fig 4) showed a stricture of the right bronchus, with a metallic body resembling an upholsterer's tack, point upward below the stricture and behind the bronchus The patient remembered having 'swallowed" a price tag fastener seven years before, but as she was told that it would pass harmlessly, she had forgotten the occurrence She had had no symptoms whatever until the following winter

Bronchoscopy—At Jefferson College Hospital I passed a bronchoscope through the mouth The trachea was full of foul purulent secretion which was removed in the same way as in the preceding case, the patient being kept only partially under ether to gain the aid of the cough reflex The last of the secretion removed from the right bronchus was mixed with blood The right main bronchus, just below the orifice of the middle lobe bronchus, was occluded by a firm stricture, the lumen of which was a mere slit, extending about 3 mm laterally, and with no appreciable anteroposterior diameter, the anterior and posterior edges being in contact At each coughing effort, bloody secretion was forced through the slit. The stricture was dilated by the instruments described in the foregoing case in the direction of the narrowest diameter Then the source of the bleeding and the blood stained secretion was found to be a mass of granulations below the stricture and posteriorly Below this was a large cavity from which a quantity of very thick pus was removed This pus was not foul like the tracheal pus. On exploration, the mass of granulation tissue at the top of the cavity posteriorly was found to protrude from an accessory cavity extending posteriorly and medianward, outside of the bronchus On removal of the granulation tissue, the foreign body was found and removed It proved to be a price tag fastener (Fig 5)

Pathologist's Report—The granulation tissue removed was examined by Dr Ernest W Willetts, who reported as follows 'Pathologic Report of Granulation Tissue Specimen consisted of several very small pieces of tissue Microscopic examination shows tissue with covering of stratified squamous epithelium which has normal appearance but is thickened considerably at some points Beneath the epithelium there was a mass of connective tissue showing many mast cells fibroblasts, new blood vessels and some older more fibrous areas There is also considerable round cell infiltration The process appears to be a chronic inflammatory one the exact nature of which is not evident from microscopic examination"

Subsequent History—The patient made an entire and complete recovery, and now, one year afterward Dr d'Apery reports that she is working at her occupation in the stocking factory, in possession of perfect health, the cough and expectoration having been totally absent for the past winter, the first out of seven winters

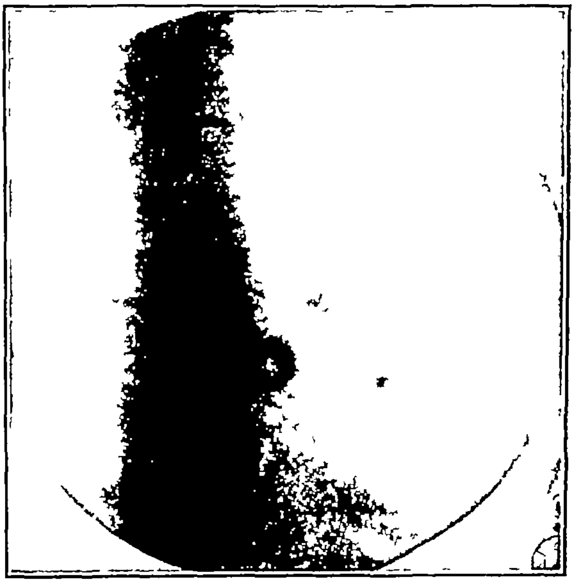

Fig 6—Radiograph by Dr Lewis Gregory Cole showing head collar button (minus head) in right lung of a boy of 18 years Removed bronchoscopically through the mouth after divulsion of the overlying stricture.

In view of the fact that almost all cases of unremoved foreign body in the lung are fatal within two years, the prolonged resistance of these two patients to the impaired pulmonary function, and especially to the secondary septic process (for eight and ten years respectively) is remarkable This resistance in the case of the boy may be partially accounted for by the open air climatic treatment in Arizona These two cases being of the longest in duration yet recorded afford interesting data on the clinical pathology of bronchiarctia Autoptical pathology is entirely wanting in my personal experience, so that all I can offer is the clinical and the living pathology based on bronchoscopic appearances and the examination of granulation tissue removed From these and the accepted fundamental pathology of the text books, the following is formulated Doubtless very minute bodies become encysted or invade the interlobular connective tissue, as in anthracosis but aspirated foreign bodies [illegible] lar[illegible] apparently rarely, if ever become encysted, though as in one of the foregoing cases the foreign body may migrate and become somewhat "pocketed"

It is evident from these two, and other, cases, that the *foreign body by gravity, as well as by aspiration* reaches the smallest bronchus it can enter, where it stops Later negative pressure draws it still further downward By mechanical irritation alone, or, more likely, from this combined with pyogenic organisms carried down with the foreign body there results a productive inflammation which first completely occludes the involved bronchus with swollen mucosa (plus the bulk of the foreign body itself) ending in abscess of the lung below the foreign body Later sloughing or ulceration follows in the tissues surrounding the foreign body, permitting the slow escape of discharges which because of the lessened expulsive cough effort from below consequent on the obstruction, tend to accumulate producing the condition of bronchiectasis above the obstruction In time, the obstruction owing to the productive inflammation becomes a cicatricial stricture Below the stricture, the abscess cavity becomes, in a sense, a bronchiectatic cavity, also The loss of the cilia and even of the epithelium itself follows, as well as increases the stagnation of the secretions The law of gravity would lead one to expect to find the foreign body at the bottom of the cavity in the formation of which it has been the chief etiologic factor The following seems a plausible explanation The abscess, of course, forms below the obstruction, but by the time the substrictural bronchiectatic cavity has been produced the foreign body has become sufficiently fixed by organization of a part of the surrounding cicatricial tissue to hold the body in its place at the top of the cavity which it has caused The development of a stricture above the foreign body is plausibly explained by the ulceration which is more or less annular Such ulceration in any channel or tube in the body always results in more or less constriction of the lumen when the scar tissue contracts That it does not occur to the same extent immediately below the foreign body is probably due to the conditions which cause the substrictural bronchiectasis

Fig 7 —Portion of lead collar button (used by laundries) removed by bronchoscopy through the mouth from the lung of a boy aged 18 years

The recovery of both these patients after the removal of the foreign body indicates *that the stretching of the* stricture improved the drainage of the cavity above as well as that below the stricture to so great an extent that Nature made a very efficient repair of the bronchiectases Of course, it is not known how frequently foreign bodies may be the cause of bronchiectasis, but the similarity of the symptoms in bronchiectasis and in foreign bodies in the bronchi, would certainly render exploratory bronchoscopy advisable even in a case with negative radiograph The close parallel between the symptoms noted in these two cases, as well as in others, and in pulmonary tuberculosis, would seem to render it advisable to suspect the presence of a foreign body in every case of seeming tuberculosis in which no bacilli are found in a purulent sputum, and especially if the symptoms are confined to the lower lobe, particularly the right lower lobe This would still leave out the cases of foreign body in which a *tuberculous infection* has preceded, or, more often followed the aspiration of a foreign body The use of the radiograph as a routine procedure would certainly seem indicated in the diagnosis of thoracic disease The erroneous diagnosis of pleural disease in these and other cases of foreign body *in the lung has been ably pointed out by Dr Boyce*[1]

Dr E Fletcher Ingals has reported a case in which he diagnosticated a foreign body in a patient previously tapped for supposed pleural effusion

The location of the foreign body at the top, instead of the bottom of the abscess cavity, is a point of greatest importance, as without the advice of Dr Boyce on this *point, the search in both of the foregoing* cases would have been prolonged, and might have been futile, because the foreign body was not in either instance free in the cavity, but, on the contrary, was fixed and bedded in granulation and fibrous tissue, external to the bronchial wall, through which it had eroded its way The finding of the foreign body would have been difficult, if not impossible, without dilatation of the stricture above them No useful forceps could have been inserted through the strictures, and the foreign body could not have been found and certainly could not have been withdrawn If withdrawal were possible, trauma would have been extensive and probably fatal The dilatation of the purely cicatricial tissue of the stricture was harmless Further, and very important, the dilatation improved drainage, so that Nature could care for the lesions resulting from the long sojourn of the intruder A period of a year has now elapsed and able clinicians pronounce the patients well

Prolonged dilatation of the stricture after the removal of the foreign body evidently should be deferred until such after-dilatation is indicated by absence of improvement in symptoms, physical signs, and radiographic signs after a number of months

The method of dilatation by divulsion devised by me and used in these cases possesses the following advantages

1 It is safe because it is under the guidance of the eye and the trained touch, by which both the direction and the extent of the dilatation are accurately limited at will

2 It does not require tracheotomy in any case

3 There is no danger of pushing the foreign body downward as is possible in certain cases, if anything in the shape of a bougie were to be used Pushing a foreign body downward not only makes removal more difficult but involves serious risk of rupturing the bronchus

4 It is, obviously, better adapted than tent dilatation *or prolonged intubation to foreign body cases*, and is, in any case, much safer and simpler

In view of the foregoing, I feel justified in urging divulsion in the treatment of bronchiarctia

1018 Westinghouse Building

ABSTRACT OF DISCUSSION

Dr. Emil Mayer, New York Dr Jackson referred to a case that occurred recently in the wards of the Mt Sinai Hospital, the patient had bronchitis *and for general reasons only a* bronchoscopy was asked for by Dr Yankauer and was permitted A quantity of secretion of a nasty offensive character was *pumped out and finally a foreign* body was found a piece of chicken bone was removed from the bronchus The patient had no recollection of having inhaled it The patient had improved and the result would no doubt be perfect My most interesting case I reported at the American Laryngo logical Association. The child had a most peculiar crowing respiration, physical signs showed absolute obstruction at the lower portion of the right lung, without any previous history of any trouble. No foreign body could be seen, it was thought to be present, however, although *x*-ray examination did not disclose it. Bronchoscopy was done and a tumor was found which filled the lower portion of the bronchial tube. Its removal completely restored health.

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[1] Foreign Bodies in the Lungs Simulating Pleural Effusion Med Rec, New York, Oct. 14, 1911

THE SUBMUCOUS RESECTION OF DEFLECTIONS OF THE NASAL SEPTUM

THE AUTHOR'S PRESENT PERFECTED METHOD *

OTTO T. FREER, M.D.
CHICAGO

This article describes my way of performing submucous resection of the septum in its now perfected state.

ANATOMY OF DEFLECTIONS OF NASAL SEPTUM

Traumatic Deflections.—These are commonly confined to the cartilage in the form of a sharp, usually vertical but sometimes more or less horizontal angle at the front of the septum (Fig. 1, Fig. 2, a, b, c, d, i), whose anterior plane lies obliquely or directly across the nostril, or may curve forward. The apex of the angle is the line of the usually ununited fragments, each in its own perichondrial envelope. They often overlap forming, instead of a pronounced angle, an irregular thickening of the foremost part of the septum (Fig. 2, d, e, f, g, h, j).

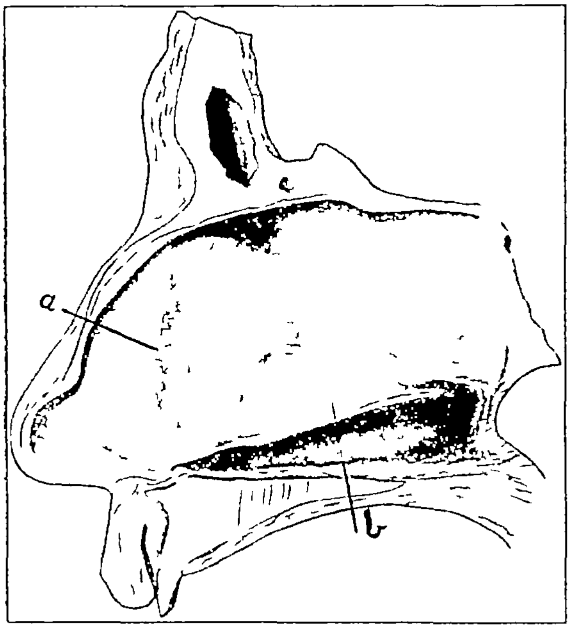

Fig. 3.—Side view of the nasal septum showing a typical double angled deflection with a, the vertical angle, and b, the ascending crest deflection. From a specimen.

The false direction given the growth of the septal cartilage by a fracture may augment a primarily moderate deflection and even involve portions of the bone.

The Osseocartilaginous Horizontal Crest Deflection from Disproportionate Growth of the Septum.—A septum growing too fast in a normal nasal cavity or normally in a contracted one, not finding room for its expansion, escapes the chronic pressure due to its proportionate excess of growth by buckling horizontally or vertically. The horizontal compression creates a vertical bowing or angle in the septal cartilage (Fig. 3, a).

The vertical pressure takes place between the unyielding hard palate and base of the skull, the result being the familiar horizontal crest deflection forming a sharp angle or crest ascending obliquely from the nasal floor along the anterior border of the vomer toward the sphenoid body in the naris of the convexity of the deflection (Fig. 3) with a corresponding groove in the naris of the concavity (Fig. 4). The vertical pressure which creates this deflection bends over the bony base of the septum formed by the incisor crest and the vomer resting on the superior maxillary and palatine crests, until it arches over the nasal floor and so makes the grooved articular surface on the incisor crest and anterior border of the vomer which normally looks upward look sideways. The pressure also makes the cartilage descend on and overlap the vomer, the cartilage carrying the entire vomero-cartilaginous articulation down with it and pushing before its advancing lower border that flange of the vomeral articular groove which comes lowermost and which hypertrophies into the well-known crest of bone with cartilage so often sawed away (Fig. 6, B, cr).

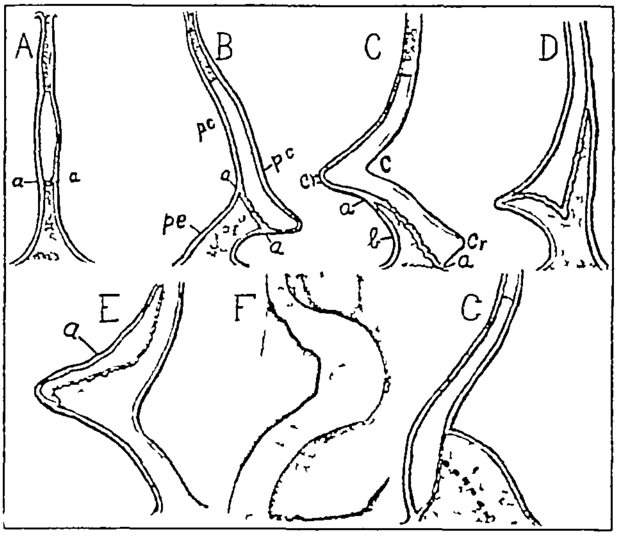

Fig. 6.—Vertical sections through the septum. A, normal septum; a—a, vomerocartilaginous joint with crossing of conjoined periosteum and perichondrium from naris to naris. B, typical crest deflection with crossing of periosteo-perichondrium in tilted vomerocartilaginous joint a—a; pc, perichondrium; pe, periosteum. C, crest deflection with tilting of the vomerocartilaginous joint into naris of concavity; c, concavity; cr, cr, cartilaginous crest in both nares; a—a, articulation; b, vomer. The cartilage is shown bent on itself in the form of a knee in a manner typical of this type of deflection. D, rare case; cartilage resting in crotch formed by hypertrophied flanges of anterior border of vomer. E, the bony V formed by the junction of the perpendicular plate and vomer and showing a cartilaginous strip created by escape of cartilaginous prolongation normally within the vomero-ethmoidal articulation. F, a massive bony V. G, crest deflection with typical concavity, yet with the other wall of the septum nearly straight because of lack of overhang of the deflected vomer. Dotted line shows position of usual overhang.

The arrangement of the periosteum and perichondrium in the crest deflection is also important and was first described by me (*Journal of Ophthalmology and Oto-Laryngology*, 1907). The periosteum ascending on the vomer from the nasal floor on the side of the convexity, passes over the tilted articular surface under the overlapping cartilage to the top of the vomer, whence it descends on the other side of the vomer into the opposite nostril. Similarly, the perichondrium descending over the cartilage on the side of the convexity curls around its lower border and, blending with the periosteum under the overlapping cartilage, ascends on the cartilage in the other nostril The membranous bridge thus passing through the vomero-cartilaginous articulation must be cut through to denude below it (Fig 6, B a-a)

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* Because of lack of space this article is abbreviated in The Journal with the omission of most of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

The bottom of the groove of the concavity of the crest or horizontal deflection coincides with the upper border of the vomer and the tilted articulation described, while what has become the lower border of the articulation corresponds with the crest of the horizontal angle of the deflection in the naris of the convexity Between groove and crest lies the hidden articulation (Fig 6, B, a-a)

The angle formed by the cartilage and bent-over vomer is continued posteriorly and upward by the vomer and perpendicular plate bent out to form a V lying on the side (Fig 7, Fig 6, E, F) The formation of the V by these two bones opens the joint between them at the apex of the V and so permits the cartilaginous strip, lying normally within the joint, to grow out from its open side, where it is attached by indentations to the brodened, rough surface of the laterally opened articulation as a thick, long cartilaginous crest (Fig 7, a, Fig 6, E, a)

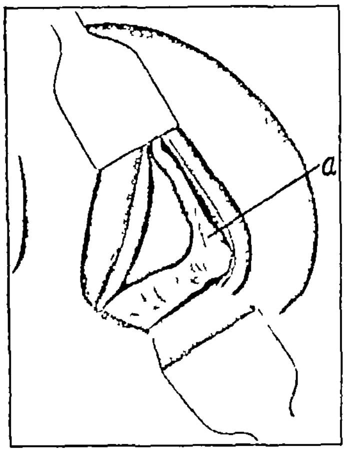

Fig 7 —Nostril held open with retractors, showing the perpendicular plate and vomer joined to form the bony V a strip of cartilage extending backward over opened vomero-ethmoidal joint.

Instead of tilting toward the naris of the convexity the vomero-cartilaginous articulation may tilt toward that of the concavity, the cartilage overlapping the ridge in this naris and producing a deflection having a horizontal crest marking the border of the articulation in each nostril, as shown in Fig 6, C, cr, cr

Where only vertical growth compression exists the horizontal crest deflection just described results Combined horizontal and vertical compression produce a vertical cartilaginous and a horizontal crest deflection, either both in the same naris or in alternate nares, when they form a horizontally *sigmoid deflection*

Where the perpendicular plate of the ethmoid bone bulges into the nostril opposite to the horizontal or crest deflection a vertically sigmoid deflection is formed

Displacement by growth downward and forward of the free movable part of the septal cartilage, the so-called columnar cartilage, dislocates the free anterior inferior border of the cartilage from its position above the cutaneous septum and causes the columnary cartilage to curl out into one or the other external nostril (Fig 8) This may be the only existing deviation of the septum or the free border may form the lower border of the anterior plane of a vertical angular cartilaginous deviation, the free border then lying across both nostrils (Fig 1, a)

STEPS OF THE OPERATION

Position of the Patient—The patient lies on an operating chair which can be raised and lowered and whose back may be fixed at any desired angle to the seat of the chair (Fig 9) In all cases, the operator stands beside the patient on the side of the naris in which the operation is conducted For the final tamponing the patient is placed in an ordinary straight backed chair with the operator sitting in front of him

Illumination—The Kirstein head-lamp fitted with the umbrella filament Bunnings' miniature lamp

Anesthesia—From the tenth year on, in nearly all cases, local anesthesia is employed, a light general narcosis combined with local anesthesia being reserved for younger children to overcome resistance After clipping the hairs from both nasal vestibules, a small swab is wet with a 1 to 1,000 epinephrin (adrenalin) solution and dipped into pure flake crystals of cocain, the cocain epinephrin mud being then rubbed into the mucosa on both sides of the septum over the area of the operation In about three minutes the anesthesia is complete All the mucosa becomes insensible except where it is cutaneous in the nasal vestibule Later, anesthesia is made complete here by rubbing cocain into that part of the incision

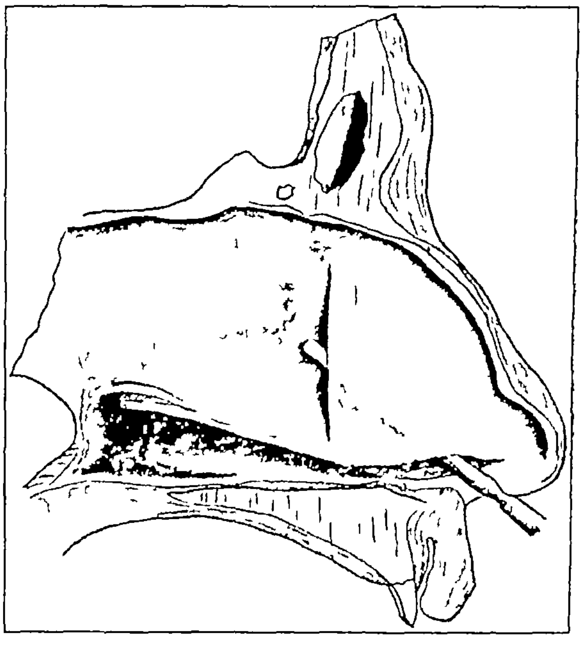

Fig 12 Convexity of a double angled deflection The sharp elevator is seen entering through the horizontal incision and cutting out through the mucosa perichondrium from underneath to make the vertical cut

Time Required—The patient, not understanding that the operation, when properly done, is painless, imagines that the longer it lasts the longer his supposed suffering Taking advantage of this misconception certain operators make much of the short time in which they claim to do the operation Gentleness and care take time, while haste means violence, injury and pain The time required is from one-half hour to two hours, according to conditions Bleeding from high blood-pressure and especially the results of preceding unsuccessful operations make slow and cautious progress necessary

Assistants—Two are needed

Specula—In place of a speculum, two narrow, flat retractors held by an assistant hold open the sides of the nostril A third retractor held by the operator pulls the bottom of the nostril downward (Fig 10)

Incisions in the Mucous Membrane—Except in a few horizontally sigmoid deflections, where the operation is begun in the concavity of the anterior bend, the resection is done in the naris of the convexity Unless peculiar incisions are demanded the operation is begun by the creation on the convexity *of the deflection of a flap* reflected forward The first cut (Fig 11) is made with the knife D, from behind forward, along the base of the septum where it joins with the nasal floor In the adult, the cut is begun ¾ to 1¼ inches behind the posterior border of the external nostril and is carried well forward into the cutaneous portion of the septal covering to within ⅜ inch of the anterior border of the nostril After oozing has stopped, the incision is spread open by having the assistant pull the posterior border of the nostril down with a retractor while the operator lifts the upper lip of the wound with a dull elevator, in order to see whether the perichondrium has been divided If not, it will be seen as a thick white membrane which is divided with the knife E, enough of it being scraped upward to expose the dead white of the cartilage From the slit so made, the angular knife Ia or the straight one E is introduced under the perichondrium, dissecting it from the cartilage until dull denudation becomes possible It is continued as far as the dull elevator can go, upward, backward and downward Downward it is arrested at the apex of the sharp horizontal angle of deflection by the crossing of the periosteum-perichondrium from naris to naris Here the sharp elevator is used and, cutting around the crest, close to cartilage and bone, it detaches the flap to the nasal floor Backward, the denudation for the flap is carried as far as may be, passing a vertical angle of deflection with the dull elevator if possible If not, the sharp one must be used Denudation around the vertical angle is impossible in some extreme traumatic deflections and here the vertical incision of the L must follow the crest of the angle

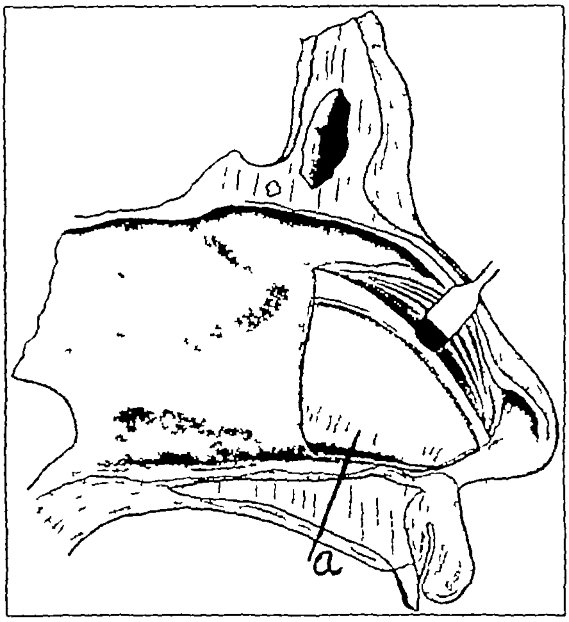

Fig 13 Side view of convexity of a double angled deflection The cartilaginous deflection has been excised The mucosa is shown lying loose and detached behind the vertical cut. The L flap is pulled upward and forward to show the dorsal cut in the cartilage a anterior part of vomer and incisor crest (the ridge) concealed under the periosteum

When the denudation for the flap is done, a sharp elevator, I or W, is passed through the horizontal incision under the detached covering to the rear of the denuded area The blade is then thrust through the mucosa from underneath and cutting up and down, makes the vertical incision of the L as far back in the naris as possible (Fig 12) The sharp elevator thus entering through the horizontal incision and emerging from under the flap through the vertical one continues the vertical cut downward to the nasal floor and releases the flap by cutting free its corner The flap is now reflected *forward and upward* until it can be caught and held by the assistant's retractor in the external nostril

Next, beginning at the posterior edge of the vertical incision, the covering on the posterior part of the deflection behind this incision is uplifted down to the horizontal angle of deflection with the dull elevator, the sharp one then cutting around this angle and to the nasal floor under the periosteum of the vomer The convexity of the deflection is now bared and the cartilage, uncovered by the reflection of the flap forward is in plain sight

The Resection of the Cartilage—The resection of the cartilage in growth deflections is described here as the typical procedure, the changes from it demanded by the rarer traumatic deflections being noted later The first incision in the cartilage is made with the round edged knife E in the line of reflection of the flap and parallel to and as far behind the dorsum of the external nose as sufficient removal of the cartilaginous deflection permits This incision I call the dorsal cut and the cartilage left under the nasal bridge the dorsal strip (Fig 13)

In the flap operation the important dorsal cut is made in plain view and is placed just where it is wanted in relation to the nasal bridge whose under surface it should not approach nearer than ⅜ inch In contradistinction the tearing, hidden, ill-controlled course of the swivel knife may go dangerously close to the bridge (Fig 11)

When the anterior inferior free border of the septal cartilage stands normally over the cutaneous septum or curls away into the other naris the dorsal incision in the cartilage is joined by a horizontal one following the horizontal mucous membrane cut described If, however, the free border curls into the naris of the operation, the uplifting of the cartilage from its underlying muco-a-perichondrium is begun with the sharp and dull angular elevators Ia and Ib from the free border by dissecting upward from it between the cartilage and the covering of the opposite nostril until the dorsal cut is reached In the other cases the uplifting of the cartilage from its attachment to the mucous membrane of the other side is begun either from the dorsal or from the horizontal cartilaginous cut with the small angular knife Ia (Fig 10) In either case as soon as a tongue of cartilage is freed its edge is seized with a mouse toothed forceps and turned up to show whether a film of perichondrium clings to it, for if not scraped off this film leads the elevator away from the cartilage and into and through the mucosa of the opposite nostril

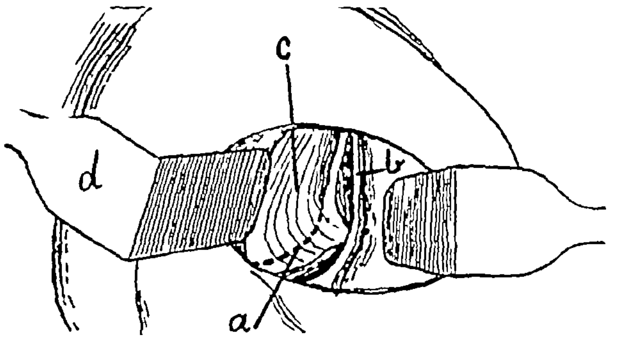

Fig 17 A—The ridge (incisor crest and vomer) hidden under its periosteum which is continuous above with the perichondrium of the opposite naris Dotted line a shows line of cut through periosteum to ridge b detached mucosa behind vertical cut c mucosa perichondrium of opposite naris d retractor

Behind th [illegible] it portion [illegible] dull elevator will usual [illegible] the cartilage until it is arrested at the bottom of the groove of the concavity of the horizontal angle of deflection by the crossing of the periosteum from naris to naris as described. To force dull denudation below this crossing creates the commonest type of perforation, along the anterior border of the vomer. The dull elevator should therefore be replaced by a keen one which, entering the vomero-cartilaginous joint, cuts the cartilage from its broad, rough attachment to the side of the vomer and emerges in the naris of the convexity from under the cartilaginous crest, so completing the detachment of the cartilage along its lower border. This overlapping portion of the cartilage is unreachable by the swivel knife, which is arrested by the anterior border of the vomer.

The cartilaginous deflection is next cut away behind by means of the sharp hoe which is passed backward between the cartilage and the detached coverings of the naris of the concavity to the rearmost part of the area of denudation (Fig. 15). Its blade is then turned away from the mucosa and made to cut through the cartilage up and down, severing it from its posterior remnant. Its attachment above is then cut through with the sharp elevator and the detached part of the cartilage is pulled out of the nostril. Its remnants are now cut away strip by strip with the hoe and the sharp elevator.

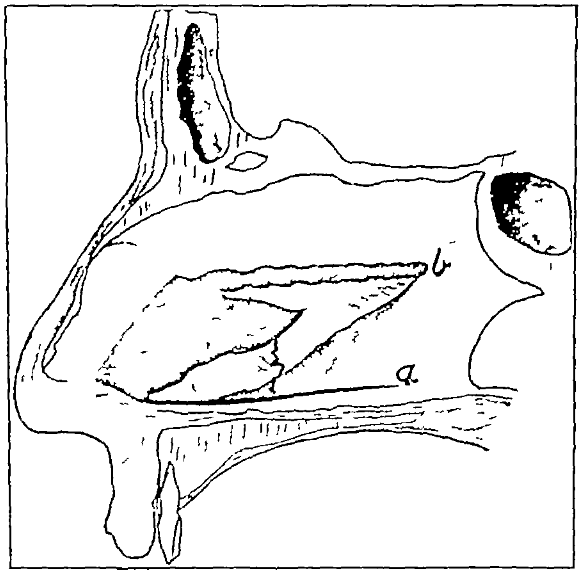

Fig. 19.—The undercutting a, and the overcutting b of the ridge and bony V with the chisel below and the punch forceps above.

Where, as described, the tilted vomero-cartilaginous articulation slants away from the operator into the naris of the concavity, dull denudation of the cartilage from the covering of that naris may go almost to the nasal floor. In this case, however (Fig. 6, C, b), the vomer lies between the operator and the overlapping cartilage which must be detached from the bone by cutting down over the top of the vomer, the cartilage being dug piecemeal out of its bed between the vomer and the covering of the naris of the concavity.

The Resection of Traumatic Deflections.—Where the anterior plane of the vertical angle of deflection is of difficult access because it lies transversely or curls forward, it is usually best merely to outline the resection in front by the dorsal cut in the cartilage and to detach the cartilage toward it forward from the apex of the vertical angle of deflection and upward from the base of the septum. As the planes of the vertical angle of a traumatic deflection are the commonly ununited fragments of the fracture, each in its own perichondrium, the removal of the anterior fragment or plane leaves no cut edge of cartilage visible behind it to indicate the anterior border of the posterior fragment, which is only found after the perichondrium has been split along it with the knife. Denudation backward with the dull elevator is then usually easy.

The sharp-angled concavity of extreme traumatic deflections is filled by a long tongue of mucosa-perichondrium (Fig. 2, a, b) whose whiteness renders it liable to be mistaken for cartilage and excised with the creation of a large perforation.

When fragments of cartilage overlap, two or even three, lying side by side may have to be dissected out of the thick adherent perichondrium layer on layer of imbedded cartilage being thus encountered (Fig. 2, e, f, g, h). When the columnar cartilage lies in one or the other of the external nostrils, it may narrow it to a mere slit and yet be hidden from view because closely attached to the side of the incisor crest and to the nasal floor (Fig. 16). The resection of the hidden dislocated cartilage replaces the collapsing slit nostril by a roomy one which will not collapse.

When the columnar cartilage alone is deflected, it is excised through a curved incision through the mucosa-perichondrium made about a centimeter behind and parallel to the free border, the integument, when dissected up with the knife E, being slipped over the border of the cartilage, which pops out of the slit thus made. This incision places the cut out of sight back in the naris. The columnar cartilage is then dissected from its bed while held with forceps, and is cut away with the sharp hoe as high as required. When the dislocation of the columnar cartilage is merely the foremost lowest part of an angular deflection in the same naris the reversed L flap is used. In the cases in which the free border is dislocated into the nostril opposite to the one containing the angle of deflection, it must usually be dissected out from the latter from the incision just described.

The Resection of the Bony Portion of Deflections.—In the crest deflection, after the removal of the cartilage, there is seen, slanting steeply into the naris of the operation, the broadened, rough articular surface of the vomer, covered by the periosteum which crosses from nostril to nostril (Fig. 17). As it is continuous above with the perichondrium of the opposite nostril, it hides the so-called ridge (incisor crest and anterior part of the vomer) from view.

The denudation of the bony deflection is begun behind in the concavity of the bony V on the perpendicular plate, which is bared of its periosteum with the dull elevator down to the apex of the concavity of the angle formed by the junction of the perpendicular plate and vomer (Fig. 17). From this point forward lies the top of the hidden ridge, discovered by feeling upward on the septum until bony resistance ceases and bagging of the covering of the opposite nostril shows where the top of the ridge is. Along its whole length the periosteum is now split with the knife E (Fig. 17), to the foremost part of the incisor crest (Fig. 17). Downward from this periosteal cut, on the side of the convexity the raspatory now bares the articular surface and also the under surface of the over-arching vomer of periosteum to the rearmost limit of the deflection. The raspatory is then cautiously worked over the top of the ridge and strips the periosteum from its other (concavity) side to the nasal floor in the opposite naris (Fig. 18).

The bony deflection now stands naked and the chisel, applied to the front of the incisor crest, is driven backward on the hard palate underneath the ridge with a dental mallet To cut closely to the hard palate the bevel of the chisel blade should look upward If the chisel is stopped by diving, the bevel should be turned downward, when the chisel will rise and again make progress When the ridge has been undercut to a vertical line drawn through the junction of the perpendicular plate with the vomer, the handle of the chisel is lifted to break off the severed bone at the rearmost part of the cut Remaining periosteal attachments, made tense by pulling on the loose bone with forceps, are then cut through and the detached ridge is pulled out of the nostril

The removal of the bony V is next begun by continuing the under cutting of the vomer with the chisel on the hard palate as far back as the deflection goes The V is then severed above by cutting a path with the punch forceps in the line where the deflected part of the perpendicular plate joins its straight part above (Fig 19)

If the V, thus detached above and below, now becomes freely movable, it may be safely broken from its posterior attachment with the forceps If it still remains firm, it is not safe to break it from the strong bone that holds it behind and it should be cut away with the punch forceps (Fig 10) Bent out portions of the perpendicular plate are now cut out with the punch and the bony resection is completed

The tilting of the vomero-cartilaginous articulation into the naris of the concavity does not materially change the bony resection from that just described

The flaps are then smoothed down, and if all of the deflection has been removed, will lie flat, the septum appearing straight on both sides and the posterior pharyngeal wall being visible through the now very roomy naris The resection of even a moderate deflection produces a surprisingly capacious naris by not only straightening but also thinning the septum [1]

Perforations—In my last 200 cases only three perforations occurred, so small that their reporting is merely a matter of conscience

Protection of the Dorsal Strip by the Flap—In addition to giving a free operative field, the most important office of the flap is to blanket the cut edge of the cartilage left under the nasal bridge, thus protecting this important buttress during healing and preventing the softening and absorption of cartilage which, as I have observed, spreads to a variable distance beyond an uncovered cut edge of cartilage and might lead to a saddle nose I have never seen one after an operation by my method in the eleven years which I have practiced it, but know that enough have been created by other operative ways to hurt the esteem of the submucous resection

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SOME SUGGESTIONS IN THE METHODS OF CORRECTING DEFLECTION OF THE NASAL SEPTUM

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All operative work permits of variation in the technic within certain bounds to accomplish the result desired, according to the ingenuity and individual equation of the operator No operator should follow a set routine in doing an operation when circumstances in the case or his own predilection demand a modification It is necessary only to follow the basic principles governing the technic in order to secure a successful issue

ANESTHESIA

In my early work in this operative procedure, I adopted the prescribed method of inducing anesthesia through the use of cocain After operating a number of times by inducing local anesthesia, I became impressed with the fact that I was doing justice neither to the patient nor to my sense of nervous equanimity through operating by this method and resolved to do the subsequent operations under general anesthesia I have now, for over a period of years, done all of my submucous operations under chloroform narcosis In producing general anesthesia for this operation it is of course essential to have a good anesthetizer, and it is important that the anesthesia be maintained only in a sufficient degree to keep the patient quiet Every one must admit that this operation is essentially a major one, and, therefore a hospital procedure It has always impressed me as remarkable that so few ill results to the welfare of patients have been recorded from the unwisdom of doing this operation in the physician's office and permitting the patient thereafter to go home Admitting that this operation is a major one, and, therefore, a hospital operation, should it not be done by a method that will give the patient the greatest freedom from shock, the minimum degree of pain, with the greatest degree of comfort and ease of operative procedure on the part of the surgeon? It seems to me that the above-indicated advantages can be more certainly assured under general than under local anesthesia Shock is greater under local anesthesia in this operation than under general anesthesia in proportion to the nervous susceptibility of the patient Pain is absolutely annihilated by the general anesthesia, under local anesthesia the operation may or may not be devoid of pain, always in proportion to the amount of bone removed I find few operators who are unqualifiedly willing to state that they may remove bone by chisel or forceps without giving their patients pain under local anesthesia Under general anesthesia the surgeon is absolutely at his ease, he is not obliged to divide his time between entertaining or quieting the fears of his patient and the various steps of his operation He can operate more to the purpose and center his whole attention on the technic of the operation The fact that the operation can be done in practically half the time—actual operating time—under general anesthesia than under local anesthesia demonstrates the fact that the operator is more at his ease through this method The only objection that I can conceive to the production of general anesthesia is the agent used and the slight increased annoyance from the bleeding The ischemia produced under local anesthesia is no doubt more decided than under general anesthesia through the use of the adrenal preparations, nevertheless, the slightly increased bleeding under general anesthesia is almost a negligible quantity unless there is undue tearing of the flaps With only the primary incision, without breaking or perforating one or the other flaps, there is only sufficient bleeding to require occasional mopping never enough to interfere with a good view of the field of operation

The armamentarium which is required may be reduced to a few instruments as follows a Freer right angle retractor a Ballinger septal knife for making the primary incision a Killian double armed elevator for raising the mucoperichondrium and periosteum, a Freer sl[illegible] work at the cartilago-osseous articulations and where adhesions exist, Killian's long nasal specula, Killian's septum forceps, Luc's forceps for cutting through thickened vomer, Ballinger's swivel knife, a V or other type of chisel, mallet, and a pair of nasal forceps With this simple armamentarium, ingenuity and surgical skill, all cases of submucous resection, however complicated, may be mastered

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[1] For the after-treatment see the complete article

THE CHARACTER OF THE PRIMARY INCISION

I uniformly resort to the vertical incision through the mucoperichondrium and the cartilage, extending from as high under the dorsum of the nose as it is possible to go, down to, and extending into, the floor of the nose The instrument employed for this purpose is the Ballinger septal knife This incision is uniformly made on the convex surface of the septum, unless conditions in the individual case require it to be made on the concave surface The incision is made through the cartilage down to the perichondrium on the concave side, the finger being inserted in the concave side as a protector and guide It is important to make the incision through the tissues throughout its whole course The incision into the floor of the nose, as suggested by Yankauer, is of great importance, as it permits the placing of the flap on the convex side well against the outer wall of the nose, thus giving a broader field through which the subsequent operative manipulations are to be employed In those cases in which the free end of the cartilage is bent outward into either nasal cavity, the incision is made directly down on the free presenting border of the cartilage and the dissection is made directly backward from each side of the cartilage The incision is made, ordinarily, so far forward as to overcome the point of bending Should a puncture be made in the course of the primary incision through the mucoperichondrium of the concave side, indicated by sensation, or by a drop of blood showing on the protecting finger in the concave side, a perforation is likely to occur at the point of penetration, unless it be guarded against In order to prevent such a puncture developing into a perforation, after the soft tissues are separated on the convex side, a new incision is made through the cartilage about 3 mm posterior to the former incision down to the mucoperichondrium of the concave side, and through this new incision the soft tissues are separated on the concave side There is no operation in which the axiom "Make haste slowly," is so important as in the submucous operation The starting of the raising of the flap on both surfaces should be done very cautiously The operator should exercise due caution at the cartilago-osseous juncture in the separation, remembering that as demonstrated by Freer, the periosteum and perichondrium are not continuous at these borders

It is well to bear in mind that any incision which deviates from the vertical incision is apt, except in the hands of the most experienced operator, to leave a greater or less area of gap, which must fill in by granulation, and which enhances the danger of perforation should any accident occur to the other unincised flap Especially is this true of any form of flap which entails a horizontal incision, such as the various forms of L-shaped flaps Usually, after performing a perfect operation through the vertical incision, without any injury whatsoever to flaps and with their perfect coaptation, there is practically no crust formation and the case requires no attention at the end of ten days All operators using the vertical incision, when finding a tear in the lower border of the flap, simulating in result an L-shaped incision are well aware of the protracted healing, the crust formation and the cicatrix which results when the healing is complete The nice coaptation of the lower border of the horizontal leg of the L-shaped flap is almost impossible, consequently there is more or less of a gap which must fill in by granulation The control of the flap during the subsequent phases of the operation and its protection from injury must entail greater embarrassment and care than is required by operating through the simple well made vertical incision

A great advantage of having the patient under a general, rather than a local, anesthetic is the freedom with which the finger may be used for exploration, if this be desirable The advantage of this exploration to one who has made use of it in desirable cases is too patent to require argument Well-bowed septa, which permit no view of the nasal fossa beyond the dome of the convexity, can be perfectly oriented through this method of exploration, establishing the existence or nonexistence of ridges or spurs of the septum beyond the parts subject to visual inspection The use of the finger is also of value in cautiously forcing over sharp angles and marked convexities of the cartilaginous septum, so that the extreme angle is softened down and the dome of convexities made less pronounced The cartilage so forced over remains in the altered position only a few moments but this is usually sufficient time to assure greater ease and safety in surmounting these otherwise difficult passages in the above-mentioned type of septal deformities I find also that, through the appropriate use of the finger during the operation, the amount of bone removal is reduced to the minimum Usually I remove the necessary amount of cartilage and chisel away as much of the nasal process and the vomer anteriorly as the circumstances of the case may require Following this, if the vomer and perpendicular plate are much bowed, a narrow ledge of bone in an anterior posterior direction is removed through the point of greatest deflection as far back as is required After the completion of this stage of the operation, the Killian speculum is removed, if it has been employed, and the index-finger is inserted between the flaps down to the osseous septum, when slight pressure toward the concave side is employed by the end of the finger on the lower bony ridge first until it fractures and then on the upper until it fractures, a little molding will then place the osseous septum in a perfectly vertical position When this procedure can be adopted, it not only materially lessens the amount of bone removed, but also lessens the actual time required in making the operation Even after the removal of pronounced ridges or spurs, in the osseous portion of the septum, the bone above and below will often be found out of its normal vertical plane These are ideal for finger correction, as a little pressure will snap them over into the vertical plane These suggestions are not new, but, if they prove of practical utility to some of my hearers I would feel repaid

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SUBMUCOUS RESECTION OF THE NASAL SEPTUM

INDICATIONS AND CONTRA-INDICATIONS

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ST LOUIS

The operation known as submucous resection of the nasal septum has been in general use for about eight years During that time, it has become an important part of the rhinologist's work, and it seems almost gratuitous to offer any additional words on its indications and contra-indications And yet, on the other hand, the greater experience and opportunity for observation afforded by the multitude of cases make a definite statement of much greater possibility than heretofore For this reason, the invitation to take part in the symposium on submucous resection was accepted

INDICATIONS

There is little argument as to the indications While some rhinologists still cling to older forms of operation, the vast majority are more and more limiting themselves to the submucous resection And with the coming of the younger generation, there is a still greater tendency to ignore the older forms of operation What is more logical than the removal of an offending deflection after elevating the mucosa on both sides? How much better than to saw it off, to smash it, to cut it cross-wise, to use any of the cartilage flap operations and then put in a retaining splint for a longer or shorter period! Certainly the millennium for nasal surgery is almost at hand when such operations can be done speedily and safely and with so little discomfort to the patient

In considering the indications it is first necessary to study the deflection itself The varieties have been classified in various ways, as to position, character and amount While these are important from a pathologic standpoint, they are not so essential in determining the indications For our purposes it will be sufficient to group the deflections as to degree as follows (1) slight, (2) marked, (3) extreme

While there is no hard-and-fast line of division between these, the designations are sufficiently clear for the purposes outlined The term deflection is here used generically to include deviations, spurs and ridges

1 *Slight Deflections*—These vary from the minutest degree to that which of itself cannot materially act as an obstruction to nasal drainage or respiration

2 *Marked Deflections*—In this group there is always some interference with nasal respiration or drainage

3 *Extreme Deflections*—This division comprises those deflections which cause a continuous and excessive obstruction to nasal respiration or drainage What would be a marked deflection if confined to one side becomes an extreme deflection if the other side is also affected

These groups having been thus defined, the indications may be outlined as follows

Recurrent Acute Inflammations of the Nose—Slight deflections rarely exercise an etiologic influence in this disease, though marked and extreme deflections often do

Acute Inflammation of the Accessory Sinuses—Removal is indicated for any deflection of the second and third degrees, as the interference with nasal drainage is one of the marked predisposing causes There is even some justification in operating on a slight deflection if other means have been tried without avail

Hypertrophic Rhinitis, Chronic Rhinitis of Various Forms—Whether or not operation is contemplated on the turbinates, deviations of the second and third degree are to be corrected Operation on slight deflections is not indicated

Atrophic Rhinitis—It is always a matter of some doubt whether septal operations are of any value in atrophic rhinitis of long standing At any rate, little can be expected from operation on any but extreme deflections In early cases improvement may follow operations on marked deflections especially where drainage is subjected to material interference

Chronic Inflammation of the Accessory Sinuses and Nasal Polypi—Marked and extreme deflections are to be corrected and even slight deflections when they interfere with proper treatment or drainage of the sinus

Hay Fever—Experience has shown that while a septal operation has no curative influence on this condition, it generally assists in alleviating the symptoms

Diseases of the Pharynx, Larynx, Trachea and Bronchi—Whenever there is nasal respiratory insufficiency causing mouth-breathing, its cause should be removed and hence deflections of marked or extreme degree are to be corrected

Middle-Ear Affections—Marked and extreme deflections are to be corrected in view of their influence in causing and increasing affections of the middle ear Removal of a slight deflection may be called for especially when it is so located that some change in the density or supply of air is occasioned

CONTRA-INDICATIONS

Nasal operations are subject to very little danger and an unfavorable issue, so far as the life or health of the patient is concerned, seldom results This has been ascribed to the fact that the nasal mucus is sterile ordinarily or at least that it is not a good host for bacterial flora

Besides this, it must be remembered that the drainage after nasal operations is especially good and there are no confined places where pus bacteria may find a favorable nidus for development This refers more particularly to the ordinary cutting operations The submucous resection is an operation of a different type, for here we traumatize the osteochondral surfaces of the mucous membrane which have previously not been exposed to the air When these surfaces are more or less closely approximated, they afford opportunity for the formation of pockets between them in which bacteria may develop In this situation, too, the danger is greatly increased by the lack of drainage from these pockets The practice of retaining the plug in the nose for more than twelve hours still further encourages septic invasion

Serious results have been reported by some observers Thus Hays[1] had two cases of septicemia, one resulting in death Horn[2] reports, out of 110 cases, tonsillitis occurring thirteen times, in one of which severe pericarditis and endocarditis resulted, otitis media suppurativa three times, septal abscess twice, perichondritis once

In my own practice, before I adopted the plan of removing the plug within twelve hours after operation, I had far more cases of tonsillitis following the operation than since In one case, the septic tonsillitis was accompanied by a nephritis In another, otitis media suppurativa followed I am convinced that the danger of infection is materially increased in proportion to the time during which the plug is allowed to remain in the nose

Naturally, too, the dangers are decreased in proportion to the means taken to operate under the strict [illegible] modern surgical technic Hence operations performed in the office cannot offer as much in this respect as those performed in a hospital

Correspondingly, the contra-indications are not so potent in the one type as in the other

The following are contra-indications

1 *Age*—The very old and the very young are not good subjects for operation In the first instance it can

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[1] Hays Septicemia Following Submucous Resection of the Nasal Septum Laryngoscope 1[illegible]

[2] Horn Die Sch[illegible]lichkeiten und Complikationen der [illegible] Op [illegible]

only be most exceptional for the operation even to be considered and then the short period of life yet before the patient, the greater danger of operation, its decreased value in patients of this type and the fact that it is not a life-saving measure all contribute to make the operation unjustifiable In the second instance, no harm will result from postponement There is even a great deal of question as to the advisability of operating on those who are beyond middle life In most instances, the damage has been done and as a rule no further harm is occasioned by the presence of the deflection Sometimes growing deafness calls for removal of the obstruction, particularly if it be of the extreme degree, although under these circumstances even one of a marked degree should be removed when its influence is clear But to remove the obstruction simply for respiratory purposes is indicated but seldom in individuals past middle life

In children and in young people below the age of 18 there is always great doubt as to the advisability of operation Even now, experience has been insufficient to establish just what influence the removal of a large portion of the septum in the young has on the development of the nose

Moreover, Rethi[3] states that the development of the septum has a marked influence on the face in adult life Lothrop[4] reports that of eight children between 7 and 13 years of age on whom a submucous resection had been performed, the tip of the nose was depressed in five instances He ascribed the depression not to the insufficient support from too little cartilage but to a retarded growth of the remaining cartilage, while the bony parts develop normally I refrain from doing a submucous resection in those under 17 or 18 unless it is imperative by reason of associated conditions involving the sinuses or middle ear Even then I remove as small a portion as is consistent, preferring to postpone the more radical operation until a later period

2 *Acute Sinus Disease*—The presence of a suppurating focus close to the seat of operation materially increases the danger and hence the operation should be postponed until the cessation of the active process In chronic conditions there is far less danger

3 *Acute Middle-Ear and Pharyngeal Diseases*—Under these conditions, operation is inadvisable and when there is much tendency to them, great circumspection should be observed

4 *Syphilis*—Very naturally, during the active stages all operations not urgently indicated should be postponed There is moreover, much danger in operating on the septum in the presence of nasal syphilis in the tertiary stage I have seen a patient with tertiary syphilis of the nose on whom a submucous resection was performed by a practitioner who failed to note the presence of the disease Following the operation, there was extensive destruction of the nasal bones, the septum, malar bone, floor of the orbit and palate and the greater part of the superior maxillary Frequently, a deflection will be the seat of a syphilitic process which may escape the attention of the rhinologist intent on the obstructive condition

5 *Tuberculosis*—Tuberculosis of the upper respiratory tract is a contra-indication Pulmonary tuberculosis is likewise a contra-indication, unless it is probable that the operation on the nose will lessen the symptoms due to the condition of the nose, pharynx, larynx or ear Even under these circumstances nothing should be done, if it be manifest that the patient has only a short time to live

6 *Serious General Conditions*—General conditions, if serious, should deter one from performing the operation, especially chronic inflammations of the kidney, heart, etc, diabetes and most mental affections Hemophilia, severe anemia and leukemia, carcinoma and other diseases which are likely to terminate in early death are definite contra-indications

CONCLUSION

In conclusion, it may be stated that besides the indications and contra-indications enumerated, there is always the personal element to be considered, made up of the technic of operator and his conscientious appreciation of what is best for his patient

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS FREER, RICHARDSON AND LOEB

Dr W L Ballenger, Chicago As to the swivel knife, I have little to say If an instrument cannot take care of itself after it has been used by the profession for eight or ten years, I have not the slightest inclination to defend it As to its being the cause of deformities of the nose, I have no information whatever, perhaps it is because it is used a hundred times more often than any other method. Now, if the swivel knife is used with intelligence, and certainly Freer's instruments require intelligence for their use, I am sure it could never cause sinking in of the nose It is my practice before operating on the nose to feel the tip and see if there has been previous injury followed by softening, if so, I do not perform any extensive operation on that portion, they are the cases in which there is sinking in Another kind consists of those followed by infection of the wound and destruction of more or less of the cartilaginous tissue I do not believe the swivel knife or any other instrument has ever been the direct cause

Now, as to the use of the finger, as referred to by Dr Richardson, it has been my practice to use it, and I learn much more in that way than I can with the speculum, you can feel projecting points that otherwise you may overlook

I have never given general anesthesia but once I find it easy to introduce my finger into the nose and feel the whole septum without discomfort to the patient under local anesthesia. The safest and best method for the use of cocain is with pledgets of cotton on a probe dipped into the powdered cocain, as suggested by Dr Freer many years ago

Dr B D Sheedy, New York I am much surprised to hear Dr Richardson say that he employs general anesthesia in this operation In New York, at both postgraduate schools and at one of the universities, students are instructed not to use general anesthesia in this work on account of the associated difficulties and dangers Dr Richardson's remark that he does not know a surgeon who can do this work without pain under cocain shows that his acquaintanceship with the New York men, at least, is limited I know of many It is seldom that a week passes during which a frontal sinus or an antrum of Highmore is not opened before the class at the Post Graduate under local cocain anesthesia, and I have assisted Neumann in Vienna in doing radical mastoid operations under cocain At the New York Post Graduate School, as well as at St Joseph's Hospital, general anesthesia is seldom, if ever, employed. Cocain with epinephrin is generally employed, sometimes cocain in crystals Occasionally a writer recommends that the tampons be allowed to remain in the nose from twenty four to forty eight hours, I saw a recent article in which it was advised that they be kept in thirty six hours If one thinks of the amount of secretion that there must be in the upper breathway while these tampons are in position he will appreciate the danger of sinus infection if the tampon is allowed to remain in for more than twelve hours The longer the tampon is in the better the chance for sinus infection and tonsil infection

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[3] Rethi Ueber Septumoperationen im jugendlichen Alter Wiener med Wchnschr 1910 No 47

[4] Lothrop Observations on the Late Results Obtained by the Submucous Resection of the Nasal Septum Boston Med. and Surg Jour May 12 1910

DR C F WELTY, San Francisco The remarks I made with reference to the swivel knife are not just exactly as they have been put I made the statement that "undue force in the use of the swivel knife is liable to tear or break the cartilage from its attachment above and result in saddle nose" A patient that came home after having been operated on in Europe by one of our celebrities had such an experience Undue force was used, and in three days there was dropping of the nose, which persisted The biting forceps Dr Freer speaks of in contradistinction to breaking of the bone is perhaps a very good suggestion I have always broken the bone, but when it did not break easily I used the punch

DR. W W CARTER, New York I think Dr Freer uses too many instruments I employ only four, a small knife, a speculum, a combination elevator and curet and a punch forceps The point of this curet elevator is so directed that when the instrument is held in a straight line the tip always rests against the cartilage. The punch forceps I devised is the first punch forceps used in this procedure, and I am glad to see that it is now being generally conceded that this instrument is the proper one for removing the septum I saw recently a case, sent to me for bone transplantation, in which there was sinking in of the bridge, due to the removal of the upper edge of the septum where it rests between the lateral cartilage and where it acts as the keystone to the nasal arch I am surprised to hear Dr Richardson say that he prefers *general anesthesia* I have operated in two cases in this way and found it very difficult

DR. LOUIS OSTROM, Rock Island, Ill I want to enter a protest against all forms of packing after the submucous operation For the last four years I have operated on a great number of patients without any packing whatever, with better results than I obtained previous to this method You cannot pack the nose so as to obtain uniform pressure when the reaction produces swelling of the turbinates, and the size of the apertures of the nose absolutely limits packing over the entire operated septal area Furthermore, removing the packing during the next twelve hours allows hematomas to form, which the packing is supposed to prevent

After completing the operation I cut or punch several holes into the mucous membrane, so as to allow drainage of blood, etc, from the intraseptal space Of course, I pack if bleeding takes place to demand it, but in four years I have not needed any packing by my method Instead of packing I keep the patient perfectly quiet for three or four hours, and I have no hematoma that I would not have with packing In the course of three or four days the great majority of patients are able to be back at work

DR. GEORGE L RICHARDS, Fall River, Mass I have happened to see Killian operate lately, he uses no packing and no suture He simply puts a pledget of cotton over the nose to prevent breathing through it.

DR G C KNEEDLER, Pittsburgh I make the Ballenger incision and use the swivel knife After removing as much of the cartilage as possible in one piece, I correct the abnormalities as to thickness and curvature, placing it in a normal salt solution at about 99 F, until the operation is completed, when it is reinserted and the incision closed by two stitches This procedure I have followed for the past two years without losing the cartilage or a failure to secure union in a single case out of a series of thirty eight done during that period By this method I secure a septum which approaches the natural one by making a firmer support to the mucous membrane, and by preventing the possibility of the enlargement of an accidental perforation that might be made during the operation A portion of the cartilage is also left at the tip of the nose I have never seen any sinking of the nose

DR. OTTO T FREER, Chicago I do not need general anesthesia for my operation for the shock and pain which have impelled Dr Richardson to make general anesthesia a part of his method do not belong to mine By taking time I can employ the gentleness and patience which avoid these features Dr Richardson speaks of the bleeding as slight under general anesthesia Of course, where the operation is confined to merely cutting out a piece of cartilage with the swivel knife and perhaps breaking over some bone, the bleeding is slight, even when the patient is put to sleep and foregoes the hemostatic effect of cocain epinephrin anesthesia but where the real surgery demanded is done and the often massive bony deflection is resected as it should be, with the cartilage, there may be free temporary bleeding from bone and periosteum, even under local insensibility, not to speak of general narcosis, under which hemorrhage is as unchecked as in the days before cocain.

Dependence on general narcosis necessarily makes the operation a hasty one The virtues *of the flap* are as stated, protection of the strip of cartilage under the nasal bridge visual access to everything and the avoidance of hematoma and possible resultant abscess I find neither the crusting nor protracted healing mentioned by Dr Richardson as pertaining to the flap, which, contracted during the operation, expands by the next day, so that there is linear union of the L wound

Dr Richardson speaks of inserting his finger between the flaps to break over bone It is unsurgical to put a finger in a wound if it can be avoided. A thick bony deflection can seldom be broken over, and where it does break in a thin place, the thick part of the bone, with its projections is left to obstruct *Bone should* be resected, not broken over and left by easily satisfied surgery Fracturing, unless the bone be overcut and undercut, is liable to send dangerous fissures into the sphenoid sinus, the *optic foramen* or the cranial cavity I have had as good results in patients over 70 years of age as in *younger patients* I *must* ascribe the depressed *tips of the* five children mentioned by Dr Loeb to the popular Killian method, which is unsuitable for children, and includes the swivel knife, whose dangers, its unguidable tearing cut, its likelihood *of pulling* on and breaking the bridge would be increased in a child's frail nose In my hundred operations on children I have had perfect results and no deformity

Text books have *called* my operation a modification of Killian's My *first* description of my operation was in THE JOURNAL of the American Medical Association in 1902 Killian's first paper appeared in 1904 two years later My instrumentarium and operation are original throughout and I was the first to describe the preservation of the mucous membrane, before Hajek, Menzel or Killian

DR CHARLES W RICHARDSON Washington, D C I believe *that in this*, as in a good many other important procedures that have been *suggested, that* after general anesthesia has been tried and its advantages recognized, a great many will *adopt it in this* work I would like to call attention to the fact that there are more deaths being caused by the use of cocain and epinephrin in this operation than can ever be produced through general anesthesia

The clean finger properly used is necessary in a great deal of operative work I have never had an infection in septum work I did not refer to breaking thick bone—I stated distinctly that I cut away the thickened angle of deflection, and should there be still thin portions of the perpendicular plate or vomer out of the perpendicular above and below the portion of deflection removed *this* could be replaced by gently fracturing it over by *the pressure of the finger*

The swivel *knife is* not to be used as a tearing instrument but as a *cutting* instrument, and in all the cases in which I have used it on the cartilage, it has cut as perfectly as any instrument could Guided with good judgment and discretion it can be used as safely as *any* instrument working back in a cavity I use a tampon such as has been *referred to by Dr* Freer Excessive bleeding either before or after tamponing means excessive tremor of flaps With the vertical incision you cannot get much hemorrhage I never have any hemorrhage in these operations after tamponing or after removal of tampons

DR. B D SHELDY, New York I want *to* say in regard to Dr Richardson's remarks about deaths *from* cocain in the submucous resection that there have been no deaths in our city from that operation so far as I know The deaths that have been reported by rhinologists were in patients in whom cocain and epinephrin had been injected into or around the tonsil

If Dr Richardson will refer to my recent article on "The Use of Bisulphate of Quinin as a Local Anesthesia," in the *New York Medical Record,* in which the deaths that had recently occurred were reported, he will find that no deaths from or in connection with this operation were reported

Dr H. W Loeb, St Louis I have discarded the method of operating in the sitting position which is so tiring If you operate with a patient in the recumbent position, the danger from cocain is much less, the patients do not faint and the position is much better for the operator

THE EXPLORATORY NEEDLE PUNCTURE OF THE MAXILLARY ANTRUM IN ONE HUNDRED TUBERCULOUS INDIVIDUALS

DEMONSTRATING THE MARKED DISSIMILARITY BETWEEN THE CLINICAL AND POST-MORTEM FINDINGS

ROSS H SKILLERN, M D

PHILADELPHIA

Ever since I began to pay especial attention to the accessory sinuses of the nose, it seemed to me that the post-mortem findings of several investigators in sinus disease and pulmonary tuberculosis appeared unreconcilable with clinical findings

Frankel,[1] in necropsies on forty-five patients who died from pulmonary tuberculosis, found that the sinuses were diseased and that sixteen, or about 35 per cent, contained pathologic secretion

Harke[2] found inflammatory exudate in one or both of the maxillary antra of twenty-three patients, or 60 per cent, out of thirty-eight who had died from pulmonary phthisis

Minder[3] discovered four, or about 23 per cent, in seventeen, and Wertheim,[4] thirty-one, or 29 per cent, in 106

The method employed by these investigators to inspect the sinuses closely adhered to the technic of Harke This consists in peeling back the scalp in front to the eyes, behind to the foramen magnum, and in sawing a vertical cut which divides the nasal chambers The two sides are pried apart with heavy chisels, thus laying bare the frontals and sphenoidals and making the ethmoid capsule and maxillaries easily accessible

Reverting to these post-mortem findings, it will be noted that four pathologists give the proportion of sinus disease in tuberculous individuals as approximately 37 per cent This would mean that one out of every three phthisical patients had a sinus affection I had never been able to substantiate these findings in clinical examinations on the patients referred to the laryngologic department at the Rush Hospital for Consumption and, while accepting their possibility, could not do otherwise than look on whatever sinus inflammation might exist as insignificant or at least so latent that no subjective or objective symptoms were ever occasioned This standpoint, however, was highly unsatisfactory, as it did not prove that inflammation failed to exist because no signs of purulent secretion were present in the nose, nor did it disprove the apparent connection between pulmonary tuberculosis and sinus disease On this account, three years ago I started an investigation which would demonstrate conclusively the exact proportion of maxillary sinus empyema occurring with consumption This consisted in making needle punctures of the antra, when permitted, on each tuberculous individual admitted to the hospital, regardless of the nasal symptoms, and in irrigating the cavity with warm normal salt solution The maxillary sinus was selected because (a) it could be punctured with little or no inconvenience to the patient, (b) it is more frequently diseased than all of the other sinuses, and (c) it requires but a moment and is free from untoward after-effects

TECHNIC

Both nasal chambers were thoroughly irrigated with warm normal saline solution until perfectly cleared of all secretion Cotton carriers saturated with 20 per cent solution of cocain were introduced beneath the inferior turbinates as high as possible and allowed to remain in place for at least ten minutes The point of a sterilized Lichtwitz needle was placed in the anesthetized area and with a gentle push penetrated into the antrum Only in exceptional cases was the slightest force required Air was now forced into the sinus through the needle in order to ascertain whether the lumen was free and in proper position The syringe was then filled with the normal salt solution and under slight pressure the liquid was forced into the cavity, the patient holding the head inclined forward in order that the escaping fluid would appear anteriorly and be caught in a clean basin In this manner the sinus was irrigated and the returning fluid subjected to careful inspection Both antra were treated in this manner If pathologic secretion were present even in small quantities it could easily be detected as it presented a cloudy aspect in the basin

One hundred patients were thus examined, nearly all being in the last stages of consumption, with the following results

Of the 100 right maxillary sinuses, seventy-two were absolutely normal fourteen showed considerable blood, in eight returning fluid was turbid, and in four purulent secretion was found

Of the 100 left maxillary sinuses, eighty-eight were absolutely normal, none showed blood, in seven the returning fluid was turbid, and in three purulent secretion was found

On the right side, if we accept the blood as a mark of disease, the percentage would be 26, while that of the left side would only be 10, making an average of 18 per cent If we eliminate those which showed excessive hemorrhage, the proportion would be very much less, totaling only 11 per cent When one takes into consideration that the bleeding occurred only from the right side and that no pus was apparent either with the naked eye or microscopically (in two cases), it would seem that other factors, such as possible traumatism of the antral mucosa with the needle, might have been more or less responsible In 7 5 per cent the returning liquid was turbid, showing that secretion of some sort had been present in the sinuses We must consider these as diseased In only seven sinuses, or 3 5 per cent, was purulent secretion present Considering then that 11 per cent were proved diseased, why do the post-mortem examinations show such a high percentage (37 per cent)?

Before attempting to explain this discrepancy let us briefly consider the physiology of the maxillary sinus under normal and pathologic conditions

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[1] Fränkel E. Beitrag zur Pathologie und Aetiologie der Nasennebenhöhlenerkrankungen Virchow's Arch. f. path. Anat 1896 cxliii

[2] Harke Beitrag zur Pathologie und Therapie der oberen Athmungswege Wiesbaden 1895

[3] Minder Fünfzig Sektionsbefund der Nase und deren Nebenhöhlen Arch. f. Laryngol. u. Rhinol 1902, xii.

[4] Wertheim Beitrag zur Pathologie und Klinik der Erkrankungen der Nasennebenhöhlen Arch. f. Laryngol u Rhinol., 1901 xi.

Torne,[5] in a series of elaborate experiments, was able to prove that the normal sinuses during life are sterile. By making necropsies as soon as possible after death he showed that it required several hours for bacteria to infect these cavities. In all those cadavers which had not been dead for over two hours the healthy sinuses were sterile while contamination occurred in direct relation to the length of time elapsed since life became extinct. In all bodies microorganisms were present five hours after death. The reason for this normal sterility is explained by his experiments on the heads of freshly slaughtered calves. These heads, while yet warm, were opened in such a manner that the nasal wall of the antrum was fully exposed, yet not soiled with blood. Small particles of lamp-black were placed on different portions of the sinus and observed under a strong reading-glass. They were seen plainly to move continuously in the direction of the ostium and finally to disappear into the nose. The rate of speed equaled about 0.5 cm. per minute. This was, of course, due to the ciliary action of the sinus mucosa. The action became feebler and feebler as cadaveric rigidity became established and finally ceased altogether. This explains the reason for the sterility of the sinuses during life. Even should minute foreign bodies find their way into these cavities, the ciliary action of the mucosa would expel them through the ostium into the nose.

When the mucosa becomes inflamed, even though slightly, the increased hyperemia causes swelling which interferes with the action of the cilia in direct ratio to its volume. Bacterial action in conjunction with this inflammation can destroy large areas of the columnar epithelium and after the cilia are destroyed the character of the tissue often changes from columnar to squamous epithelium. A sinus which has been the seat of a chronic disease would therefore be unable to resist microorganismal invasion to the same extent as one fully supplied with normal ciliated epithelium. During life the cilia prevent the wandering in of microorganisms and should any gain access to the sinus through forcible blowing of the nose or otherwise they are subsequently expelled unless the mucosa is diseased or injured in which case it might prove a suitable medium for their growth.

It is this action of the cilia which explains the discrepancies between my clinical findings and those recorded by the pathologists. The antra in those cases in which the fluid returned clear were healthy beyond all shadow of doubt as they showed no symptoms either previous or subsequent to the needle puncture. In those cases which showed an excess of blood subsequent puncture in ten of the fourteen brought forth the rejected fluid unchanged. Only those in which the liquid was turbid or contained pus could be unqualifiedly accepted as cases in which pathologic secretion was present in the sinus. As mentioned before, this was 11 per cent., while the post-mortem examinations showed secretion in 37 per cent. Shortly after death the cilia become motionless, yet the glands continue to secrete or at least become relaxed so that whatever secretion was present would appear in the sinus. Specific gravity would also cause the secretion to collect in the most dependent portion. Even were the walls but moist, the collection of this fluid would not be inconsiderable and might readily appear turbid either from chemical changes or from the action of bacteria. In many of these cases the mucosa was reported unchanged. It is even possible that maceration from the contact of the secretion together with the action of the microorganisms, might cause microscopic changes to appear in the mucosa. Torne[5] found pathologic changes in the antral mucosa of seven (23 per cent.) of thirty individuals who had died from pulmonary tuberculosis. While in all these cases microorganisms were found in the fluid within the antrum, in not one could the tubercle bacillus be isolated. In seven tuberculous individuals (not pulmonary) no changes were present in either the maxillary or frontal sinuses demonstrating clearly that no direct connection exists between tuberculosis and sinus disease.

As a further test in this direction, my assistant, Dr. H. M. Goddard, employed the following technic in five cases. The nares on both sides were thoroughly flushed out and the Lichtwitz needle introduced under strict antiseptic precautions. A small quantity of sterile normal salt solution was injected into the antrum, then aspiration was practiced. The fluid thus obtained was caught in a sterile vessel and incubated. Various cultures were attempted, but in no instance were microorganisms present.

To revert now to our question, it would seem that the difference between the clinical and post-mortem findings depends largely on the length of time which has elapsed between the necropsy and the death of the patient. The longer the time the greater the probability of finding secretion. This would account for the variance in the results of the previously mentioned pathologists which appear in the following order:

1. Harke, sinus disease in 60 per cent., post mortem.
2. E. Fränkel, sinus disease in 35 per cent., post mortem.
3. Wertheim, sinus disease in 29 per cent., post mortem.
4. Minder, sinus disease in 23 per cent., post mortem.
5. Törne, sinus disease in 23 per cent., post mortem.
6. Skillern, sinus disease in 11 per cent., intra vitam.

The pathologic explanation of this discrepancy appears to be due to the action of the cilia. It is entirely within the range of possibility that during the last days of a consumptive, owing to the debilitating character of the disease, the action of the cilia becomes feebler and feebler until the ciliary wave is so weak that it is unable to expel the secretions from the cavity. This would explain the post-mortem conditions found several hours after death. We must, however, admit that sinus disease in tuberculous patients is far less prevalent than post-mortem examination would lead us to suppose. This fact was clearly brought out and substantiated by the results of the exploratory needle punctures.

CONCLUSIONS

1. *The sinuses in health are free from bacteria.*
2. *Tuberculous subjects are not more prone to sinus inflammation than are other individuals.*
3. *Tuberculosis of the lungs does not predispose to sinus inflammation.*
4. *Genuine tuberculous processes are rarely if ever found isolated within a sinus.*

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ABSTRACT OF DISCUSSION

DR. JUSTUS MATTHEWS, Rochester, Minn.: I have found suppuration of the antrum possible without the constant presence of demonstrable pus and I think that fact offers a possibility of error in Dr. Skillern's conclusions.

DR. L. W. DEAN, Iowa City: I have seen two cases of alveolar necrosis in which exploratory puncture of the antrum was negative although it contained pus. One of the patients was operated on in [illegible] and the statement was made after puncture that the antrum was not involved, and it was somewhat embarrassing to find on operation that the antrum was filled with polypi, although there was no purulent secretion present.

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[5] Törne: Studien über die bakteriellen Verhältnisse der Nasennebenhöhlen, Nord. med. Ark., 1904, i.

DR. HANAU W. LOEB, St. Louis: While these experiments are certainly very interesting they hardly justify completely the conclusions of Dr. Skillern. It is quite possible that there might be disease of the sinus without a sufficient amount of exudate to show in the washings. I do not think Dr. Skillern has done enough as yet to justify the theory that inflammation results from the fact that the cilia lose their function during the last few days of life. Examinations made immediately before death might show whether this conclusion is correct or not.

DR. W. C. BALLENGER, Chicago: Dr. Evans, of Chicago, who was pathologist at the Cook County Hospital several years ago, made some observations along this line as to exudate in the crypts of the tonsil; he found that a large percentage of these cases showed the presence of diseased exudate in the sinuses and crypts of the tonsils and his conclusion was that just previous to death the vitality of the individual became so low that there developed in these cavities an inflammatory condition that had not existed a few days earlier. It is quite possible that these examinations might have been made just at the time when there was no demonstrable pus, that we might have a diseased sinus without the presence of demonstrable pus, at least by the methods pursued by Dr. Skillern. While the observations of Dr. Skillern are interesting yet they would have been more valuable if he had had *x*-ray pictures to show if there was any inflammatory process in the antrum. I do not agree with Dr. Skillern in his statement that the antrum is more often diseased than any other sinus; I believe that the ethmoid sinuses are much more frequently involved than any other.

DR. ROSS H. SKILLERN, Philadelphia: That needle puncture might be negative and yet disease of the antrum exist, is of course, unquestionable, but I was not looking for changes in the mucosa, but rather for exudate in the cavity. I investigated the matter after the findings of the men I quoted, particularly Minder, who speaks of an exudate being present. If it were present, it would have to come out with the needle puncture as employed. Examinations microscopically and by culture were made and even these failed to disclose inflammatory products. X-ray and post-mortem examinations would have been desirable, but were not available under the circumstances.

USE OF SALVARSAN IN LESIONS OF THE NOSE AND THROAT

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BOSTON

Of all syphilitic lesions those of the nose and throat yield most rapid and satisfactory results. Unlike the other specific lesions, the stage of the disease apparently is of little or no consequence. The tertiary symptoms give way to the magic of salvarsan as quickly as do those of the primary and secondary stages. Bone lesions of the roof of the mouth and of the nose recover nearly as rapidly as do those of the mucous membranes and muscles of the throat. One structure alone in our field of work resists the treatment for any length of time. Specific lesions of the larynx for some reason or other do not react to the treatment with the same degree of satisfaction as do those of the nose and oropharynx.

Early syphilitic lesions often find their way to the specialists in nose and throat diseases and tertiary lesions are often seen in our special field of work. Thus we are frequently called on to treat the ravages of this dreaded disease. Were nose and throat lesions our only consideration, the task would be an easy one. It frequently becomes necessary, however, to assume the entire responsibility of the patients' misfortune and in that capacity we are called on to diagnose and treat any specific lesion in the entire body. To combat the disease successfully in our own field of work, we must thoroughly understand the action of this new and not altogether harmless drug on every other organ of the body, particularly as certain structures are highly susceptible to its irritating influences.

Generally speaking, salvarsan is indicated in diseased conditions of the body when a positive Wassermann reaction is present. Occasionally this diagnostic reaction may be negative. Should experience in syphilitic disease lead us to suspect the lesion to be specific and a careful systematic exclusion of other causes still points toward syphilis as a probable cause, salvarsan is still indicated and in many cases will speedily give the desired result. Experience has taught the profession, however, that there are certain limitations to this mode of treatment which must be clearly understood and rigorously observed lest harm come to the patient.

Broadly speaking, salvarsan is contra-indicated in any acute inflammation of the eye, heart, kidney or nervous system. To use salvarsan in an acute inflammation of any of these organs may mean danger or even death to the patient. There is again an exception to this rule, however. Whenever active inflammations in these organs are of specific origin, salvarsan is not only indicated, but demanded for the welfare of the patient.

More than one death has occurred in Boston from the giving of salvarsan and severe inflammation of important organs has followed its use, to my certain knowledge. Certain individuals show a marked idiosyncrasy to arsenic, and in such instances average doses of salvarsan may give rise to very disagreeable symptoms. One such case occurred in a woman from a comparatively small dose and continued for a considerable length of time with highly disagreeable symptoms. One Boston physician, if he has any reason to suspect such a tendency in his patients, tries them out for a few days on Fowler's solution. In the early days of salvarsan treatment, much was written about arsenical poisoning, due no doubt to an impure preparation of the drug, or to a faulty solution of it. At present, this particular phase of the treatment causes comparatively little trouble, even when very large doses are given. So much has been written on the method of giving salvarsan that little good can come from further discussion. Suffice it to say, that intramuscular injections are almost never given at present.

The choice of location and method of introducing the solution into a vein rests with the operator. The dissection method and the Schreiber method each has its advocates and it makes little difference to the patient which is used, providing the solution reaches the blood-stream and no leakage occurs. The Schreiber method is open to this objection that a very sore arm will result in the case of any fluid leaking into the surrounding tissues. The dissection method is oftenest used for this reason, and it practically does away with such a possibility.

Both methods have been in use in the Boston City Hospital since the beginning of salvarsan treatment and are equally successful in their results.

Two equally distinct systems are used also in the amount of the drug given. One system uses comparatively small doses repeated at intervals. The other gives one large dose not repeated. The first system in addition employs iodids and mercury as a routine treatment in conjunction with salvarsan. The other relies on salvarsan alone and gives neither iodids, mercury or other antisyphilitic medication. In the case of the combined treatment, the dose varies with the age, size and strength of the patient, stage of the disease, etc. From 0.4 to 0.6 gm. constitutes the dose in this system followed at once by mercury and iodids or both, in the ordinary doses. In the other method 0.9 gm. is given in one dose and is not repeated for three months. As before stated, this method is not followed by iodids or mercury. Equal results are claimed for both methods so far as clearing up of symptoms is concerned. Just what the comparative results are in obtaining negative Wassermann reactions I am unable to state. In the first method, the operator prefers giving mercury by inunction first, deep injection second and by the mouth last of all. When eye symptoms are present the succinimid of mercury is chosen, the great advantage claimed for this drug being its free solubility.

All primary and secondary symptoms clear up like magic under treatment with either system, and tertiary lesions yield to it in an almost equally spectacular manner. Tertiary bone lesions in a state of inflammation are usually very rapid in their recovery, as are also any broken-down tissues in this stage of the disease. The deeper the spirochetes are in the tissues the less rapid and effective is the treatment by salvarsan. The greater the blood-supply of diseased tissue, the more rapid and effective is this treatment. This is undoubtedly the reason that nose, throat and eye symptoms are so rapid in their recovery. This is doubtless also the reason why broken-down tissue in the tertiary stage yields so much better results in the same period than intact lesions such as gummata. Here again is the theory advanced for the use of iodids.

Tertiary lesions occur most frequently in comparatively dense tissue, and the process of this stage is more or less to wall off the lesions from adjacent structures. This walling-off process, as in the case of gummata, decreases the blood supply to a marked extent. In this process the salvarsan in the blood stream has far less ability to reach the spirochetes, and thus to exert its antisyphilitic power on them.

Iodid of potassium has the peculiar power of breaking up this walling-off process, peculiar to the tertiary stage and accomplishes a great amount of good by establishing free access to the tissues for the blood to enter. Neither salvarsan nor mercury possesses this ability, peculiar to the iodids. Mercury and iodids or salvarsan and iodids, work hand in hand in this respect, however, as the mercury and salvarsan rush in to kill the spirochetes as soon as the iodids have broken down the wall of resistance to their antisyphilitic powers. Personally, I believe that the iodids play a most important rôle in this respect. It is claimed that salvarsan ceases to have any potency after five days have elapsed. If this is true, mercury in conjunction with the iodids is an important factor in clearing up the spirochetes left unharmed by the salvarsan.

The sudden breaking down of walled off cavities containing large numbers of spirochetes occasionally gives rise to a curious phenomenon. Great numbers of spirochetes are then released in the tissue in too great numbers to be overcome and killed by the salvarsan, or the potency of the drug is too feeble to destroy them. When such an occurrence takes place a local inflammation begins in that locality, and the lesion in that particular part becomes exaggerated and more active.

Shortly after salvarsan has been introduced into a vein certain symptoms may develop, which are somewhat disagreeable to the patient. A sensation of fulness in the head or vertigo often occurs, headache, nausea and an occasional rise of temperature and chills may follow. The headache occasionally is severe enough to require an opiate of some kind. Usually, however, all such symptoms last but a few hours and are of comparatively little consequence. In two cases, of which I know, extreme hysteria occurred and persisted for two days.

Elevated temperature is most apt to arise in early secondary symptoms with extensive rash present. It occurred, however, in one of our hospital cases in a tertiary lesion of the larynx. In this case it rose to 102.8 F. after the first injection, to 102.2 F. after the second, and to 100 F. after a third. Except for the comfort of the patient, little or no attention need be given this phase of the treatment.

Untoward symptoms have occurred in the city of Boston in a very small percentage of cases, so far as I can learn. I have heard of two deaths following the use of this drug. Very sore arms were encountered in the early days of the treatment, but rarely occur at the present time. Arsenic poisoning has occurred several times with its attending symptoms. Other than this I have heard of no harmful results. At least five or six hundred cases have been reported by Boston writers which brings the percentage of fatal or complicated cases down to a very small figure.

In the early days of salvarsan treatment, great stress was laid on the danger of blindness following its use. Three factors entered largely into the reason for this. (1) Other forms of arsenic than true salvarsan were used in experimenting, (2) the salvarsan used was not properly prepared, (3) experiments were performed largely on small animals whose eyes are very susceptible to irritation from arsenic. This is particularly true of cats. Latter day treatment with salvarsan has given little trouble in the eye, and except in optic inflammation of a non-specific origin, the eye is not particularly subject to inflammation. In syphilitic diseases of the eye, such as iritis and interstitial keratitis brilliant results have followed its use. In one case of chorioiditis, in the Boston City Hospital, the treatment failed to give relief. The question may be raised however, as to whether or not this particular case was of syphilitic origin. It is only fair to state also that in one case salvarsan caused decided harm, panophthalmitis developed, which cost the patient the loss of an eye. In this particular case, salvarsan undoubtedly made the eye worse and was responsible for its loss. One or more of the eye cases deriving marked benefit from the treatment were patients with congenital syphilis.

Aural complications following the treatment are rare. Two cases have occurred to my certain knowledge, however. One of them occurred in my private practice. Both occurred in tertiary cases and developed soon after injections of salvarsan. My own case was peculiar in that it followed the third injection, having had no trouble in that respect following the first two injections. Both patients had tinnitus and fulness in one ear only accompanied by a certain amount of decreased hearing in the one ear. Both cases cleared up after a few weeks and the patients had no further trouble in that respect.

I wish to call attention to headache, especially of the nocturnal variety. Several cases have come to my attention, accompanied by this symptom, which have yielded to salvarsan treatment when everything else failed. When this distressing symptom fails to respond to treatment [illegible] method of treatment should be seriously considered, even if a Wassermann test is negative A number of such individuals have obtained the most blessed relief in this manner, and as a last resort, salvarsan often gives the desired result The same may be said of the pains of tabes in many instances

CASE REPORTS

The following cases are interesting and illustrate very well certain phases and characteristics of salvarsan treatment

CASE 1 —This case, which is claimed to be the most spectacular salvarsan recovery known in Boston, occurred in the service of Dr Cunningham, at the Long Island Hospital The infection was undoubtedly of Asiatic origin and physicians who have seen cases in all parts of the world have pronounced this particular case to be the worst one they had ever seen The patient, a young married woman, developed the rupial type of the disease and after a time showed the blebs practically over the entire body At this time she presented a horrible spectacle Salvarsan was given and, a few weeks later, the lesions entirely cleared up, except three scars the size of a ten cent piece, and a small loss of tissue of one of the alæ of the nose

CASE 2 —A J, male, chauffeur by occupation, entered the hospital because of dyspnea Examination showed the cords to be closely approximated and considerable swelling of the arytenoids and epiglottis was present Tracheotomy was necessary and was performed Three injections of salvarsan were given at intervals After each injection the temperature was raised for a short time and also after each injection the patient coughed up a black material which appeared to be from an abscess cavity somewhere in the larynx Considerable relief apparently followed each injection After several months' treatment the patient was able to get about the ward without the tracheotomy tube, but occasionally the abductor paralysis returned temporarily and the tube had to be reinserted

CASE 3 —This case illustrates the uncertainty of salvarsan, when the treatment is neglected

A O, aged 20, male, entered the hospital for specific disease of the nose There was necrosis of the septum and of the nasal bones and the odor was so bad that patients refused to remain in the ward with him Salvarsan was given and in a month's time all the necrosis crusting, odor, etc., had entirely cleared up He was discharged from the hospital with instructions to return in thirty days for further treatment He did not return for five months and when seen again was in practically the same condition as before Salvarsan was again given and the symptoms entirely disappeared for the second time

CASE 4 —The fourth case was very spectacular, particularly in the early history Mrs S came to my office July 7, 1911 She complained of an intense headache which had persisted for a long time The pain was mostly on the top of the head and was worse on stooping There was also a gnawing pain over the nasal bones Examination showed the cartilaginous septum to be entirely gone the vomer and turbinates were intensely red covered with crusts and bled freely on the slightest touch July 11 a Wassermann test was made and found positive The following day salvarsan was given by Dr Sanborn Twenty four hours after the treatment was given the headache and gnawing pain ceased Within the next four days there was a sharp line of demarcation between the living and dead bone The necrosed bone separated easily and was picked out of the nose with a small pair of forceps Eventually the entire nasal septum came away, but the nasal bones and the turbinates were unharmed The crusting decreased to a very considerable extent within the next few weeks and the odor practically disappeared The headache has given little discomfort since The patient has had three injections of salvarsan and has taken mercury off and on She does not tolerate mercury well and cannot use inunctions at all After the third injection this patient developed aural symptoms consisting of fulness, tinnitus and decreased hearing, all in one ear only This lasted for several weeks and gradually disappeared We have never been able to get a negative Wassermann reaction in this case, but the woman is under observation still

Innumerable cases might be given of nose and throat symptoms which cleared up under this treatment In one case of leukoplakia, seen and treated in the hospital by Dr Binney, the patient improved very much, but was not, at the time of the last note, entirely well.

There seems to be a strong feeling in Boston that salvarsan should not be given with an acute inflammation of the larynx present Just why I have never been able to learn One case particularly was cited against the procedure in which a hurried tracheotomy was necessary It so happened, however, that in this much quoted case the tracheotomy was done before the salvarsan was given This patient had a laryngeal growth of some kind, and had been unable to lie down for some time When the patient was placed in the recumbent position, just previous to a salvarsan injection, the growth in some way obstructed the larynx and a tracheotomy was necessary at once False rumors of this case went abroad, and from them grew the theory that salvarsan should never be used in laryngeal cases

What the future will prove as to the numbers of cures is a matter of speculation only No man can tell Cases have been reported of the reinfection of syphilis, after salvarsan treatment. One such case occurred at the Long Island Hospital, after Dr Cunningham's treatment in which a man had a typical hunterian chancre Such instances are rare, however, and a recurrence of symptoms in the same case is not uncommon In a great many cases it has been impossible to obtain a negative Wassermann test When such negative tests are obtained it is impossible to know whether or not they will remain so for the rest of the patient's life We do know, however, that in the vast majority of cases, salvarsan will cure symptoms like magic, and that if the first dose fails, others may be given at proper intervals, until the symptoms are conquered and disappear

No syphilitic lesions will have been well treated until salvarsan shall have been administered in scientific doses, and repeated at proper intervals as long as the lesions persist

Experience is teaching us, however, that in many cases, salvarsan alone is not sufficient Our old friends, mercury and iodids, are still necessary to accomplish the results we desire in syphilitic disease, and they are still valuable agents to be used in conjunction with the brilliant but somewhat unreliable salvarsan

484 Beacon Street

ABSTRACT OF DISCUSSION

DR. GEORGE P SANBORN Boston During the past year and a half I have used salvarsan in the treatment of more than 200 cases of syphilis Among the interesting topics which suggest themselves is the question of how much confidence to place in salvarsan alone, without the aid of mercury and potassium iodid That a single dose of 0 5 or 0 6 gm cannot be depended on to extinguish the disease became evident when one of my *earliest patients developed an iritis two months after the secondary* rash and mucous patches had disappeared following 0 5 gm salvarsan Other early experiences also led to the same conclusion It was perfectly evident that some of the spirochetes had continued to exist in spite of the treatment Since almost the first, therefore, I have used mercury and potassium iodid as the most conservative treatment to supplement salvarsan

In the very early stages of the chancre the infection approximates a local one. Just before the rash develops and later, the condition becomes a septicemia, the spirochetes become generally distributed throughout the tissues The chances of destroying all the microorganisms are obviously much greater in the first than in the second case Hence the importance of early diagnosis and intensive treatment at the time when the conditions are most favorable. At this time absolute cure is apparently attainable Intensive treatment means in most cases two doses of salvarsan, ten days apart, followed by mercury salicylate ½ to 1½ grains every six days for three or more months Mercury should be continued after the Wassermann reaction is negative

I hope the time will come when the syphilitic can be isolated during the most infectious stages Until such ideal conditions come about, it is incumbent on the hospitals to eliminate so far as possible these individual foci of infection, by offering each and every actively infectious syphilitic vigorous treatment with salvarsan and mercury I cannot emphasize too strongly this feature of salvarsan, namely, that in a very few days the recipient, even though previously at the height of his infectiousness, becomes practically non infectious and of little danger to the community Extensive, intelligent use of salvarsan cannot help but lessen the incidence of syphilis Of the various methods of administering salvarsan, the Schreiber seems to me the best Experience in inserting the needle into a vein is soon obtained, so that incision to lay bare the vein will be necessary only when the veins are small or deeply situated, or both

DR WOLFF FREUDENTHAL, New York I have treated twenty or more cases and have had about the same result as other men One point which has not been brought out in Dr Borden's paper is the question of whether we should inject salvarsan in tuberculous patients I had two remarkable experiences one, a patient sent to me from Philadelphia who had received one injection of salvarsan which was followed by a large ulceration in the pharynx and larynx which nothing could check Finally, the patient could take no food at all We examined his lungs and found incipient tuberculosis The patient soon died In another case I had the opposite experience On the basis of this first case I advised my patient not to have salvarsan injected, but in spite of that he received it and it was remarkable how his symptoms improved

DR. J H. ABRAHAM, New York I had two cases of gumma of the septum, one of which was under treatment two months, the patient had been advised to have an operation for the obstruction There was necrosis and almost complete occlusion to breathing He was injected with salvarsan, and on the fifth day it was impossible to see any vestige of the diseased condition in the nose. The second injection was given on the sixth day and the third at the end of the third week, at the end of which time the Wassermann was negative While abroad last year I met Professor Ehrlich, who introduced me to several physicians who administer salvarsan in hospitals in Frankfort They prefer inserting the needle with the point directed upward

DR GEORGE L RICHARDS, Fall River, Mass Has any one seen any cases of facial paralysis following the use of salvarsan? I translated Professor Alexander's report of some cases last year in which this had occurred Some cases also occurred in Kaufman's clinic in Vienna I should like to know if any have occurred in this country

DR H W LOEB, St. Louis I had a case of evident labyrinthine trouble which followed the administration of salvarsan The patient had an initial lesion, spirochetes were found in the lesion, which was excised, and salvarsan was administered two days after the patient first noticed the sore There were no immediate untoward symptoms but three weeks later the patient was suddenly taken with nausea vomiting and dizziness and was put to bed I saw him sometime afterward when the vomiting had ceased and the nausea was practically gone, but found he had spontaneous nystagmus toward the side of complete deafness the right side This was elicited only when he looked toward the affected side His spontaneous nystagmus continued six months, but now is hardly perceptible His deafness has not improved The man's labyrinth now reacts normally During the time of the nystagmus the test with the finger movements was normal There was no ear trouble whatever before the injection Some have thought that the ear symptoms following salvarsan were due to the disease rather than to the injections Since the time of the initial lesion the patient has had no symptoms of syphilis.

DR DUNBAR ROY, Atlanta, Ga A medical student who contracted syphilis last fall, followed by secondary eruption, was given salvarsan, no symptoms were produced in the ear All the rash disappeared and the general symptoms improved Two weeks later the patient began to have tinnitus and loss of hearing That was in November, in February I saw him and made further tests While I could not see that any of the indications were labyrinthine definitely, I considered it a nerve deafness, and now he is totally deaf in both ears A physician in Atlanta has used the new preparation in a hundred cases and finds it better in every respect He says that many of the toxic symptoms that occurred with the old preparation do not occur with this neutral preparation

DR. EMIL MAYER, New York The statement has been made that specific lesions of the larynx do not yield so readily as those of the nose and throat I should take exception to that from my experience and judging from the experience of those who have seen a great deal of these conditions I might say in this connection that I think there is hardly a person present in the room who has seen such a number of cases of serious syphilitic lesions in our own country as is seen abroad I should like to know how many men there are who have had patients coming to them year in and year out for the introduction of bougies to distend cicatrices of the pharynx In my experience of twenty five years in New York, where I have seen perhaps 50 000 cases, I recall but one single case in which it was necessary to use divulsive methods On the other hand, in Berlin and Vienna, we see many patients with extensive lesions in the pharynx and larynx When we hear men like Chiari and Onodi relate their experiences with salvarsan and state how the lesions of the larynx disappear like snow under the summer sun we must believe them and with the few cases we have seen we feel that their statements are justified

DR C R C BORDEN Boston In answer to Dr Mayer I did not mean to say that inflammations of the larynx did not yield to salvarsan, but they do not yield, in my experience, with the same rapidity as do lesions of the nose mouth and upper pharynx neither do they remain cured as the others do There is now in the hospital a case of paralysis the cords being closely approximated, and a tracheotomy was necessary at once A Wassermann test was strongly positive and salvarsan was given immediately The next day the patient in a severe paroxysm of coughing coughed up a black material This patient has had three injections of salvarsan four weeks apart, and after each has coughed up this same black material He has been in the hospital now four months and has had three injections of salvarsan, potassium iodid and mercury He is *now able to walk about the ward without the tube but if he* becomes excited in any way the tube has to be reinserted There is a strong opinion in Boston that injections of salvarsan cause edema of the larynx This idea came from a case in which it was said tracheotomy had to be done immediately after the use of salvarsan As a matter of fact this patient had an intralaryngeal growth, and he had been unable to lie down for several months When he was placed in a recumbent position in order to administer the salvarsan the growth suddenly obstructed the larynx and a hurried tracheotomy was necessary before the salvarsan was injected We have had several larynx cases in the hospital, and in all of them the results have been slow

The syphilis we see in this country is not the same as that seen abroad What is said to be the worst case that ever occurred in Boston was of Asiatic origin Several medical army officers and physicians with European experience pronounced it to be the worst case they had ever seen yet one injection of salvarsan cleared up all symptoms in a few weeks

Intramuscular injections I still maintain are very little used at the present time, because of the disagreeable and dangerous symptoms which follow their use Compared with the intravenous method the results obtained have been almost uniformly unsatisfactory

In answer to Dr Richards I know of no case of facial paralysis following [illegible] varsan

CELLULAR CHANGES DURING AND AFTER ACUTE MASTOIDITIS WITH A CONSIDERATION OF THE INADVISABILITY OF CERTAIN OPERATIVE PROCEDURES AT PRESENT LARGELY IN VOGUE

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DUBUQUE, IOWA

I was prompted to present this paper by an informal discussion of the subject with a fellow member of this Section, during which discussion it developed that there existed between us a wide difference of opinion in regard to certain surgical fundamentals involved. My own observations have convinced me that the number of operators who do not hold views similar to mine is not small, and this opportunity is sought for a comprehensive discussion of the subject. It is to be hoped that none of the Section's time will be taken up with discussions of unimportant differences in technic or of procedures applicable to unusual departures from type, which in no way form any part of the subject. I appreciate that certain individual cases are laws unto themselves and present conditions which cannot be foreseen, exceptional virulence of infection, unusual lack of resistance on the part of the patient, in short, anything which has a "*sui generis* all its own," as a western writer once expressed it, may be adduced in valid argument against some portion of the contents of this paper, which deals only with general principles underlying the surgery of acute purulent mastoiditis.

It was my intention originally to make the pathologic findings during and after acute inflammation the basis of a study of the questions involved, but physical incapacitation at the time projected for this part of the work, and discovery of some authoritative statements regarding these pathologic findings determined the presentation of the subject without pathologic material.

My propositions are briefly the following: In operative treatment of an acute purulent inflammation of the tympanomastoid structures, any procedure having for its object aught than relief of pressure and establishing drainage is a surgical error. The antrum should not be opened in the absence of special indications for so doing, and should never be curetted under any circumstances.

The mucoperiosteum of the tympanic cavities, unlike its continuation in the eustachian tube, contains almost no glands, only a few scattered ones being found on the floor, the inferior portion of the outer wall, and the outer part of the superior wall of the cavum (von Troltsch and Bulle). The epithelium is ciliated cylindric in type only over small areas. That covering the membrana tympani, the ossicles, promontorium, attic and pneumatic spaces of the mastoid is pavement epithelium (Jacobson and Blau, and Kolliker). Transitional cell zones delimit the latter areas. Kessel describes minutely stomata in the pavement epithelium of tympanum and antrum communicating directly with underlying lymph-channels, and calls attention to the enormous absorptive powers of this structure, as does Bezold, who adds a comment relative to the equally great power of recuperation after violent inflammation and enormous swelling incidental thereto, thickening of 10 to 12 mm. having been observed in membrane normally 0.02 mm. thick, with subsequent absorption of all inflammatory exudate and complete subsidence of swelling.

Mucous secretion has its origin in two sources, the glands and the epithelium. Siebenmann failed to find the glands reported by certain authors and takes issue with them as to the existence of any glands at all. Schwalbe, Blau and others remark the possibility of the existence of moderate accumulations of secretion on the floor before eustachian tubal drainage can begin. It seems certain that to cause the outflow via the eustachian tube of accumulated secretion is not the sole function of the cilia.

The pneumatic spaces of the mastoid process and the aditus are dependent almost entirely on the pavement epithelium to remove secretion. In the tympanum a considerable part of the secretion is removed through absorption by the lymph-streams via stomata in the pavement epithelium, ciliary action being concerned in urging onward the masses of secretion toward the tube and toward the pavement-epitheliated absorption areas. The mucoperiosteum of the aditus, antrum and pneumatic cells of the mastoid bears non-ciliated pavement epithelium, and its blood-supply is concerned in nourishing the mucosa on the one hand, and the underlying bone on the other. Where it covers non-diploetic bone it constitutes the sole source of nourishment to the bone; diploetic bone receives additional nourishment from the circulation of the diploetic vascular system. Diploe is found in the temporal bone in widely varying distribution. Zuckerkandl, Zoja, Schwartze and others have examined many hundreds of temporal bones with a view to ascertaining facts relative to the presence of diploe; the consensus of these findings indicates that in about 40 per cent. the pars mastoidea contains no diploe, in about 22 per cent. it is entirely diploetic, and in about 38 per cent. it is mixed, pneumatic-diploetic. Diploe is normally absent from three sites in the temporal bone, the promontorium, the prominence of the horizontal semicircular canal, and the internal auditory meatus (Neumann).

After acute destructive processes involving the periosteum alone, or the periosteum and underlying cortex, diploetic bone undergoes rapid repair, granulations nourished by new-formed vessels from the diploetic circulation springing up and covering the site of the destructive process very rapidly; non-diploetic bone, on the contrary, undergoes repair very slowly, for the reason that it is entirely dependent on one vascular supply, that of the periosteum, which has been involved in the disease process and hence is not so well able to respond to the call for new vessels and nourishment.

Now consider briefly the steps in common to all acute purulent inflammations in the pars mastoidea, the avenue of infection of which is the tube and tympanum. Acute purulent infection of the cavum tympanicum, epitympanum and aditus causes acute inflammation of the mucoperiosteum, which swells enormously; the eustachian tube is closed and there is purulent matter under pressure in tympanum, attic and antrum. In writing of pus enclosed in the cavities of the middle ear under pressure, Korner says:

> The earlier this pressure is relieved and the freer the drainage, the better the prognosis for cure without bone destruction. The later pressure is relieved and the less adequate the drainage, the oftener the bone and mucoperiosteum will partake in the destructive process. In case of inadequate drainage the thin bony walls will suffer synchronous attack of the destructive process from both sides. By swelling of the mucoperiosteum the small mouths of the tubes are easily closed off from the antrum, thus setting up a purulent process apart in such cells, while antrum and cavum tympani may undergo complete healing.

The previously existent cavities of the tympanum and mastoid are completely filled by swollen mucoperiosteum, the circulation of which is so interfered with by counterpressure of the non-yielding bony walls, within which is found insufficient space for swelling, as to result in backpressure and consequent epimembranous and subperiosteal serum extravasation The infecting organisms multiply rapidly under such circumstances and under the influence of their life-products on the tissues decalcification and peptonization begin in the bone

Up to this point the pathologic changes described are common to non-diploetic, diploetic and mixed pneumatic and diploetic types of mastoid process In the non-diploetic mastoid process the first bony tissues to suffer are the thin walls of pneumatic cells, which are solely dependent on the periosteal circulation for nourishment and protection Deprived of this, they undergo rapid destruction, and abscess formation occurs The abscess enlarges in all directions until some portion of bone is encountered possessed of sufficient resistance to withstand the action of the infectious products Such resistance can lie only in bone whose circulation is unimpaired —or, in other words, bone not solely dependent for its vascular supply on the infected mucoperiosteum In such bone, response to the call on the resources of the body for serum and phagocytic protection is prompt, serum protectives in excess flush the part, cohorts of phagocytes assemble, Nature's ramparts in the shape of delimiting organized exudates are thrown up and the progress of the destructive process in this direction is arrested Then attempts at repair become evident almost at once in the form of granulation tissue, new-formed vessels extending into the exudate, organization and cell replacement, having their source of nourishment in the unimpaired vascular supply of the bone where the destructive process has been arrested To repeat, an arrest in the progress of a destructive suppurative process in the mastoid may occur when it reaches bone possessed of an unimpaired vascular supply independent of the mucoperiosteal lining of the pars mastoidea In the type of mastoid process now under discussion (the non-diploetic) the cortex would be the first bone encountered capable of such resistance In a mastoid process of this type, abscess formation may proceed from one, or more than one nidus, separate abscesses forming at first, breaking into one another as their centrifugal enlargement goes on Thus the whole processus mastoideus from zygomatic cells to tip cells may be converted into one or more cavities filled with pus and products of bone destruction The mucoperiosteum by reason of its vascular content is able to withstand the acute inflammatory attack better than the bone, and it is unusual to find mucoperiosteal sloughing even in the presence of wide spread destruction of bone In non-diploetic mastoid processes with very thin or dehiscent cortical areas, it not infrequently occurs that the bone destruction proceeds to the external periosteum before the arresting of the purulent process takes place In such cases pus under pressure finds its way through the bony cortex and intra- or extracranial subperiosteal abscess results (Bezold s perforating abscess epimastoid abscess, epidural abscess, perisinus abscess etc)

In diploetic mastoid processes containing only one or perhaps two pneumatic spaces, genuine abscess formation does not take place This type of mastoid process is only very rarely the seat of inflammatory disease of any kind Acute purulent invasion of such a mastoid results in either one of two radically different pathologic conditions Ordinarily the bone itself escapes infection, true empyema antri being the condition When the diploetic bone surrounding the antrum does become affected by the purulent inflammation, acute osteomyelitis of the mastoid process occurs Acute osteomyelitis is extremely rare in the mastoid process and occurs only in young subjects of low vitality, in whom it is very apt to prove fatal In spite of radical pathologic differences, differential diagnosis between acute osteomyelitis and abscess is not easily made

There remains the mixed type of processus mastoideus partly pneumatic, partly diploetic constituting about 38 per cent of all Of these about three-fourths are pneumatic except for 3 or 4 mm of diploe at the tip and about one-fourth are half pneumatic and half diploetic, according to Zuckerkandl, Schwartze, Zoja, Politzer and others

In the mixed type of mastoid process, purulent inflammation effects the formation of small abscess cavities which may remain discrete or become confluent, at whose margins are found organized exudate and granulation tissue This is almost the only condition in which granulation tissue is found at operation within the pars mastoidea during the course of acute mastoiditis Most so called "granulation tissue" found at operation is not true granulation tissue at all, but intensely inflamed and swollen mucoperiosteum

Analysis of the sequence of changes during the ordinary course of acute purulent infection of the mastoid process fixes the ultimate responsibility for tissue destruction on structural peculiarities of the affected part unyielding walls completely enclosing mucoperiosteum which undergoes enormous swelling within inadequate spaces, resulting in almost complete retention of inflammatory products because of occlusion of natural ways by the swollen mucosa—almost complete stagnation of circulation because of increased intramastoid pressure—serum-exudation—infiltration of tissues—decalcification of bone—peptonization of pulp—pus under pressure—absorption of toxic products into general circulation—systemic effects of absorbed toxins

Unlike the mastoid spaces the tympanic cavity is equipped with a safety appliance, the membrana tympani This bulges or ruptures in the presence of increased intratympanic pressure, which obviously can never rise beyond the breaking point of the membrana tympani Relief of pressure by sufficiently wide opening of the membrana tympani affects the mucosa of the cavum tympani, aditus and antrum, resulting in rapid subsidence of swelling and increasingly better drainage of these cavities The Germans say Every acute middle-ear inflammation manifests a tendency to heal spontaneously in spite of all treatment[1] It has been remarked by many observers among whom Jacobson and Blau, Politzer and Neumann may be mentioned, that in many cases of acute abscess of the pars mastoidea no communication exists between the abscess cavity and the antrum, and further, that healing takes place in these cases much more rapidly when the antrum is not opened Many writers have corroborated the observation of Korner that during the course of acute mastoid abscess formation the antrum and cavum tympani may undergo complete healing as the result of adequate drainage through the membrana tympani

What general surgical principles apply to the operative t[illegible]ent [illegible] various conditions? Free drainage of the tympanum, aditus and antrum by means of a large incision in the membrana tympani, kept freely open by reincision as often as necessary, should be regarded as the first and most urgent indication This cannot be emphasized more strongly than it already has been by those who have spoken with an authority I do not possess, yet again and again in my practice I have encountered cases of acute tympanomastoiditis in which actual "puncture" of the membrana has been made A "puncture" is practically no better than no opening, as it is sure to be closed up almost immediately by the edematous mucosa of the tympanum

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[1] [illegible]

The local depletion of the tympanic mucosa incidental to free incision is a desideratum hardly second to giving exit to retained purulent matter True empyema antri will need no further surgical procedure in order to secure complete healing as a rule

Acute mastoid abscess should be opened freely and drained thoroughly as early as possible Acute osteomyelitis of the processus mastoideus should be laid wide open and treated as an open wound until completely closed from the depths by healthy granulation tissue

Diagnosis between abscess and acute osteomyelitis may not be made in many cases, it is possible to overlook a cell containing infectious material unless the operator makes a complete exenteration of the processus mastoideus from tip to zygoma via the antrum Nevertheless I believe that complete exenteration as very widely practiced and advocated to-day, whether by chisel and gouge burr, rongeur or curet, for any form of acute purulent mastoiditis, is inconsistent with sound surgical principles I have witnessed many operations for the relief of acute inflammation of the mastoid process at the hands of technically skilled operators who did not cease their operative ministrations until they had encompassed a thorough removal of every visible vestige of intracortical tissue, leaving the exenterated inner cortex from tip to antrum and upward to zygoma as smooth as a billiard-ball, when as a matter of fact their services to the patient for the last thirty to forty-five minutes of the operation were of a nature to increase liability to serious internal ear and intracranial complications as well as to render healing as difficult as possible rather than to promote it

In the course of healing after such operative treatment, the cavity must first fill up by granulation The granulations must have their origin in vascular supply not incapacitated by disease or operation The inner cortex, denuded of every vessel-bearing tissue, has only a very minute haversian system by which to transmit nourishment from the circulation of its remaining periosteum for the growth of new tissue, the inner antral wall, non diploetic and bare of mucoperiosteum is incapable of granulation These surfaces remain almost as smooth as the operator left them until overspread by extensions of granulation tissue originating at the wound margins, which carry down with them their own source of nourishment and tissue-repair in the form of new-grown vessels, ultimately reaching and covering the antral wall Then, and not until then, can epithelial extensions from the mucosa of the aditus find foothold in the antrum During all this process, which consumes weeks, the wound remains open practically to the aditus, while at the wound margins the granulations will have become so exuberant as to necessitate repeated destructions Not until the antral walls are epithelialized is the wound converted from an antral fistula to a granulating wound filling up from the bottom From four to eight weeks elapse between operation and final cicatrization This is not the end, however Contraction goes on apace in the new-formed cicatricial tissues and ultimately there exists, at the end of the aditus, a "step-off" cavity much larger than the original antrum, not lined with mucoperiosteum, but with an epitheliated cicatricial basement-layer poor in blood- and lymph-vessels, lacking entirely the absorption mechanism peculiar to the endantral periosteomucosa, a cavity poorly drained as compared with its predecessor and, by reason of poorer drainage and lack of high absorptive efficiency and rich vascular supply, peculiarly defenseless in the presence of a reinfection

Too much stress has been laid on the danger of failing to clean out thoroughly every pocket of pus when operating for relief of acute purulent mastoiditis In empyema antri this danger practically does not exist at all In acute osteomyelitis the conservative surgery of open-wound treatment involves allowing the separation of viable from non-viable diseased tissues by necrobiosis or necrosis and the removal of the latter in the form of pus, slough or sequestrum in the natural course of dressing the wound It is not regarded as possible or desirable, in dealing with acute osteomyelitis, to effect removal of all infected bone at operation, nor is it considered a menace to possible recovery to overlook pockets of pus or areas of infection Furthermore, no surgical procedure whatsoever can prevent the reinfection of the whole surface of the wound within the twenty-four hours following operation

In acute abscess of the mastoid process, the prime indications are free drainage and relief of pressure, just as in the case of abscess in any other locality Failure to clean out pockets of pus during the course of the operation which meets these two indications constitutes no potential danger to the patient, whereas overzealous removal of tissue wide of the abscess cavity limits does constitute very grave potential danger, in that it involves destruction of a safeguard the importance of which to the patient cannot be overestimated, namely, the bulwarks of organized inflammatory exudate which Nature throws up, completely surrounding any such circumscribed purulent infection, obstructing far more effectively than any device of man egress from the septic focus of toxins into the general circulation, and of micro-organisms into the neighboring tissues and vessels The vascular anastomoses between the circulation of the pars mastoidea and that of the meninges and internal ear render extension of infection from an acute mastoid abscess into these danger zones more likely after operation involving the destruction of Nature's barriers than after operation leaving these inviolate

The second indication, therefore, in the surgical treatment of acute purulent mastoiditis is to make sufficiently wide removal of the outer cortex and intercellular lamellæ to make certain of free drainage and relief of pressure In a non-diploetic mastoid process, this removal should extend from the uppermost cells downward to the tip and backward to the rearmost cells, in semidiploetic, from the uppermost cells to the inferior and posterior limits of pneumatic cells

Opening of the antrum should be dependent entirely on the existence of specific indication for such procedure General indications for opening the antrum are the following

"1 When bone intervening between abscess cavity and antrum is found by the probe to be softened and mushy

"2 When the swollen lining of the abscess cavity protrudes directly into the antrum

"3 When direct communication exists between abscess cavity and antrum

"4 When, in addition to symptoms of mastoid abscess, symptoms of meningeal irritation are present

"5 When, after simple opening of abscess cavity, no amelioration of pain in the ear follows, or when symptoms of cerebral nature present suggesting extradural abscess or meningitis

"6 When in the presence of normal healing after simple opening profuse discharge from the ear persists for several weeks"

Should it be decided to open the antrum, either at first operation or later, the operator should never do more than make free opening into this cavity The use of the gouge or curet in the antrum is never indicated and should never be made for at least two main reasons, viz

No matter how badly swollen and inflamed the endantral mucoperiosteum may have been, with the subsidence of the acute inflammation consequent on free drainage, it will return to its former condition with practically no impairment of structure or function, a postoperative result not possible after the curet has been used in the antrum More important even is the second reason, *that the curet traumatizes the bony wall of the* vestibule and tegmen, and increases the possibility of the extension of infection to the internal ear and meninges

1130 Main Street

ABSTRACT OF DISCUSSION

Dr Norval H Pierce, Chicago The idea of the feasibility of opening the antrum instead of entirely cleaning out the mastoid bone to the inner surface is not new In 1882, Hessler wrote an article in the *Archiv für Ohrenheilkunde*, in which he supported the theory that it is unnecessary to open the antrum or clean out entirely the mastoid cells in the majority of acute cases As to opening the antrum I agree with Dr Lewis that it is much better if possible to avoid opening the mastoid antrum and for the reason that he has given If we take away the outer and posterior walls of the antrum we leave only the inner wall clothed with its mucoperiosteum The surrounding defenseless bone is very poor in blood supply and granulation tissue develops relatively slowly from this portion, and a large cavity is left, much larger than the original antrum, that is clothed or nourished by a low grade of mucoperiosteum, which is very liable to repeated inflammations and the recurring mastoiditis that we so often see especially in children, is due to this enormous cavity buried in the depths of the wound and the additional invasions following influenza and colds We cannot gain access to the antrum and drain it and wash out the middle ear without running the risk of the formation of this large poorly nourished cess pool that occurs from taking away the outer and posterior wall In a certain number of cases recently I have been able to enter the antrum from below, leaving the outer posterior walls of the antrum, making an opening the size of a pea into the antrum, through which it may be washed out and with it the cavum tympanum In that way we retain the natural shape of the antrum and do not have that large cavity which occurs from the other way of operating Regarding the taking away of the osseous structures down to the inner cavity of the skull, we are between the devil and the deep sea

There is not the slightest doubt but that the vast majority of the patients would do better if we simply took away the outer wall of the mastoid as far as the cells reach, back to the occipital bone, upward to the zygoma, scraping away the softened tissue that probably never would regenerate, but if we invariably follow this course we are bound to leave certain dangerous foci about the sigmoid sinus, there is no way of avoiding it To examine the mastoid thoroughly and find out if there are any of these dangerous foci it is necessary to exenterate the mastoid process, if we want to run the risk of some of these concealed foci remaining, I suppose that 90 per cent will heal quickly by the simpler method

Dr Calvin R Elwood, Menominee Mich It is not a pleasant task, especially for one who does not open the mastoid as often as he should, to keep in best practice to work with chisel and gouge in such close proximity to the cranial cavity, and if in favorable cases the desired result can be as safely and surely attained by simply removing the cortex and exposing the superficial cells, without the anxiety which attends the *opening* of the antrum it would be fine

It may be assumed that all are agreed concerning the source of infection—an extension of an infectious process from the middle ear through the aditus to the antrum and thence to the ramifications of the mastoid cells The walls of these cells—especially the non diploetic type—are poorly nourished being dependent on the mucoperiosteum along which the infectious process may spread by pin head prolongations to remote cells This mucoperiosteum becomes greatly swollen and easily falls prey to bacterial action, in which condition it would be logical to suppose it would sufficiently deteriorate to leave the underlying bone without protection or nourishment Such fragile bony partitions would naturally become necrotic and necessarily be thrown off as sequestra before repair can take place We cannot tell definitely the condition of the mastoid from observations previous to surgery We cannot tell at the time of operation the viability of the osseous structure, while experience has taught that dead bone left behind means delayed repair if not more serious trouble Therefore, when surgery is necessary why not do it thoroughly? I do not leave the surface as smooth as a billiard ball" believing as Beck has pointed out, that the burr, probably through heat generated delays repair I do however, endeavor by use of the curet to leave a perfectly clean cavity without a cell unopened believing that thereby I hasten the healing process both by granulation from the bottom and sides and the periosteum above

Dr. C F Welty, San Francisco So long as we have a method in which we can eliminate all the possible source of infection it seems to me there is absolutely no question left as to the course we should pursue We may be a little longer in bringing our cases to complete healing there may be a little more depression, but no such deformity as Dr Lewis speaks of in his paper have I seen In about a hundred acute cases, only one patient did not recover and required a radical mastoid afterward The others recovered without secondary operations That is a sufficient number to show that there is something worth while in the procedure of *going down to hard bone It is not possible to have such* results by being less thorough Dr Lewis himself says that if you have profuse discharge at the end of two weeks it is better to open the antrum, there you are subjecting the patient to a second operation which should not have been necessary at all. I recall a patient seen in consultation who had been operated on and continued to have a small amount of fever and deep-seated pain I insisted that there must be some cells that had not been uncovered and when these were eliminated the patient recovered speedily On three or four occasions I have found cells almost on the inner end of the petrous portion of the temporal bone

Dr C F Cott, Buffalo When we have a virulent infection due to streptococci or colon bacilli, then I think we must open up freely in every case When the infection is a mild one and the ear is dry before or at the time of operation, then it is not necessary in any case to open the antrum When you are sure that you have the cells cleaned out and that no more pus is present, then instead of packing close up the wound and heal by blood clot and the patient can go home in three or four days. If a focus is left it is no trouble to take out the [illegible] and [illegible] it out I [illegible] had one patient go home in three days perfectly healed The result remained good for I observed him for several weeks

Dr Seymour Oppenheimer, New York What proportion of cases in which the antrum is left intact require reoperation and in what proportion of cases in which closure has been successful has there been a continuation of discharge from the ear? I think the proposition a very retrograde one Dr Lewis says that to open the antrum is not surgical, I think just the opposite I am quite satisfied that a great many cases that require reoperation are cases in which the mastoid antrum has not been opened sufficiently The mastoid antrum bears the brunt of the burden and if the proposition were placed before me to open the antrum and not do anything else or to leave the antrum unopened and clean out the rest, I should accept the former proposition

Dr T R Chambers, Jersey City I second what Dr Oppenheimer has said and enter a protest against the position taken by Dr Lewis I am amazed at Dr Pierce He knows that in every mastoid operation you should open the antrum Many times we find a dry antrum and we do not curet, of course, or do a radical operation

Dr B A Randall Philadelphia The question must depend, I think, a little on the definition of osteomyelitis Those of us who have seen cases of genuine temporal bone osteomyelitis, such as reported in this Section by Dr C W Richardson, will never be in doubt about it It is not true in a clinical sense that because a little of the contents of the diploetic bone is involved, there must be osteomyelitis The middle ear involves all the pneumatic cavities The antrum which so many speak of as mastoid, is the posterior portion of the tympanum and as such is as well able to take care of itself as the tympanum proper or the eustachian tube As well say you must curet the eustachian tube as to say that you must always curet the antrum and open all the cells The pneumatic cells may extend clear to the sella turcica in some instances We must realize that these operative cases offer an infinite variety and we can lay down for the beginner no rule that will make the matter an easy one, so that he can do it as well as the expert who has had a thousand cases or more If we are to do good surgery we must first decide whether we are dealing with empyema or caries I hold that empyema of the mastoid can resolve successfully and safely with no bad results, but I do not advise the younger man to trust that If you are not sure it is better to operate thoroughly it is safer but there are many cases that can clear up just as does many an empyema of the antrum of Highmore When you have caries to deal with, it is a totally different proposition Tissue which is no longer viable must be taken away The expert recognizes this by sense of touch with his curet, the beginner who has this yet to learn must risk overdoing a little rather than slight his work

Dr E R. Lewis, Dubuque I am afraid I have been misunderstood by some, these men will get my ideas more clearly by reading the paper One speaker alluded to my not opening the antrum, but I say that the man who opens the antrum without specific reason makes a surgical error, and he who, with or without specific reason for opening the antrum, curets its mucoperiosteum, has, without any justification, destroyed what is of enormous importance to the patient, a lymphatic organ which cannot regenerate I wanted to bring out particularly that the mucoperiosteum is an important organ, possessing functions of great value to the individual, and that unnecessary surgical destruction of any part of it is an unjustifiable procedure Dr Oppenheimer asks for something with which I cannot furnish him I have not a large clinical practice and corps of clinical assistants to tabulate the results of my work I have been practicing otology for eleven years in a town of 40,000 and have had my share of mastoid work, all the surgery has been based on the principles here set forth I have not had one patient with an acute case who has been under my care from the outset develop intracranial complication chronic suppuration, or internal ear disease, and not one of my cases has terminated fatally

TONSIL DISSECTOR, TONSIL-GRASPING FORCEPS, TONSIL HEMORRHAGE CLAMP

LEE M HURD, M D
NEW YORK

One end of the dissector (Fig 1) is a retractor for the anterior pillar while applying forceps, and while inspecting the cavity from which the tonsil was removed The other end is for dissecting out the tonsil The edge is neither dull nor sharp, but rather an edge that is produced by the use of a fairly rough oilstone, and will cut when given a quick stroke with some pressure and will act as a dull dissector when used without much force

The forceps (Fig 2), from the nature of its action, buries itself deeply in the tonsillar tissue under all reasonable conditions The forceps is laid against the tonsil with the jaws open, one jaw at the inferior end of the tonsil, the other jaw crowded up into the supratonsillar fossa, and then the jaws are pushed into the tonsil as the handle is locked

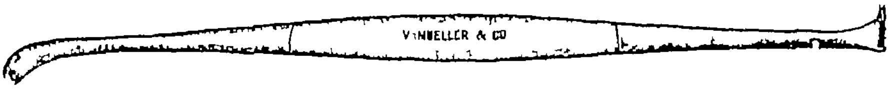

Fig 1 —Dissector

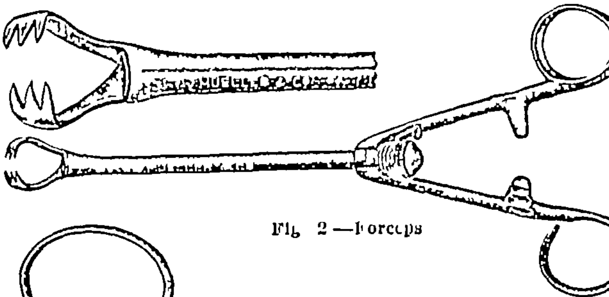

Fig 2 —Forceps

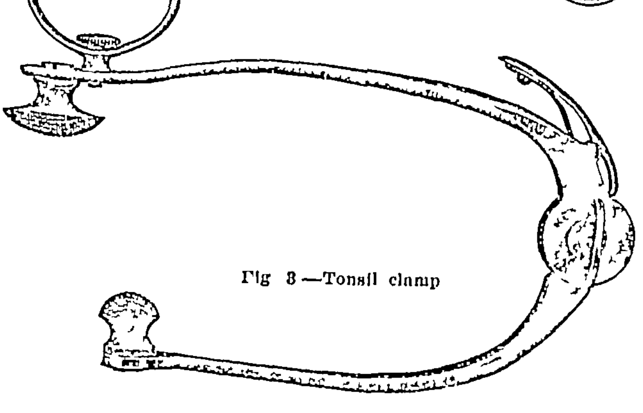

Fig 3 —Tonsil clamp

I have used these two instruments for five years They have never been recorded, but now that the dealers are importing the dissector by the gross (most of which are incorrect models) I feel compelled to offer the instruments

The tonsil clamp (Fig 3) is intended for a double purpose, first, as a method to control hemorrhage while removing the second tonsil if the blood from the first one interferes, for this purpose there is a ring fitted to the outside arm through which the assistant can slip his finger and by having the clamp half open exert pressure in the fossa and still be out of the way, second, as a tonsil hemostat clamp to be placed in position and remain for a reasonable time to check prolonged hemorrhage

1[illegible] East Forty Eighth Street.

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CARDIAC COMPLICATIONS OF PREGNANCY AND LABOR *

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One of the long-standing obstetric traditions which have been copied from text-book to text-book is that the heart of the pregnant woman undergoes marked hypertrophy, particularly during the latter months of pregnancy. This would seem reasonable on account of the extra work which the burden of carrying on the fetal circulation necessarily throws on the heart, but the recent observations of Stengel and Stanton do not bear it out. These authors assert that there is little, if any, hypertrophy of the heart during pregnancy and that the apparent hypertrophy is due to a displacement of the heart upward and outward, arising from the pressure of the growing uterus on the diaphragm. Accepting their observations as correct, we must assume that the reserve power of the normal heart is sufficient to carry on the fetal as well as the maternal circulation without reacting markedly to the added burden, and, therefore, that in the absence of complications which call on the cardiac muscle for extra work, the normal heart is not subjected to an excessive strain during pregnancy or labor. McKenzie, however, calls attention to certain circulatory changes which are not uncommonly noted during pregnancy and which would seem to prove that the apparently normal heart may react to a greater or less degree to the strain of pregnancy.

These symptoms are: (1) limitation of the field of cardiac response when a sudden burden is thrown on the heart, (2) dilatation of the right side of the heart occurring during labor or shortly after labor, (3) a tendency to edema of the lungs in the latter part of pregnancy or during labor, (4) a tendency to overfilling of the veins of the legs during pregnancy, resulting frequently in marked varicosities, (5) the occurrence of marked pulsations in the veins of the neck.

All of these symptoms must be classed as more or less abnormal and are not to be observed in a patient whose heart is perfectly capable of carrying on its work under the conditions which are present. It is fair to assume, therefore, that the burden which is thrown on the heart during pregnancy must be a considerable one, since otherwise the frequent development of these minor abnormalities would not occur, although it may demand only a minor degree of hypertrophy to preserve satisfactory compensation when the reserve power of the heart is unimpaired. These changes become more or less accentuated in patients in whom the heart is abnormal, particularly in those patients who have a valvular lesion as the result of a chronic endocarditis, and for this reason valvular disease of the heart must be considered as a distinctly serious complication of the pregnant condition.

In speaking of the prognosis of valvular heart lesions complicating pregnancy and labor Guerard gives a mortality of 28 per cent., while other observers place the mortality considerably higher, Rubinsky reporting a mortality of 100 per cent. in his series of cases. These figures, however, apply only to cases in which a failure in compensation had been present for a considerable time or in which the cardiac lesion is associated, either with marked renal changes which increase greatly the amount of work which the heart must do, or with a toxemia of greater or less severity which also throws a markedly increased burden on the heart due to the increased blood-pressure which accompanies them. The high mortality reported by these observers is due to supervening conditions and not to the strain thrown on the heart by an uncomplicated pregnancy, and the prognosis of valvular heart disease complicated by pregnancy is far less grave than these figures would indicate.

The cardiac complications which may be noted during pregnancy are acute endocarditis, chronic endocarditis with valvular lesions and myocarditis.

ACUTE ENDOCARDITIS

Acute endocarditis may arise during pregnancy as a result of a septic infection, acute articular rheumatism or some other acute infectious disease. It is always a serious and often a fatal complication of pregnancy. The symptom which is most apt to accompany acute endocarditis is pulmonary congestion with edema of the lungs, resulting in a distinct tendency to overstretching of the right side of the heart, the cardiac muscle being weakened by the acute infectious process, with the result that serious cardiac failure and syncope frequently occur. In many cases rest and the use of cardiac stimulants may tide the patient over the acute stage, and it may sometimes be possible to prolong the pregnancy to viability or even to term, but in many cases abortion becomes urgently indicated on account of the patient's alarming condition. The prognosis in general is so grave that acute endocarditis must be considered as a dangerous complication of pregnancy and the patient must be watched with care, the uterus being emptied promptly if any sign of cardiac failure appears.

CHRONIC ENDOCARDITIS

Valvular lesions as a result of chronic endocarditis can be demonstrated according to different observers in from 1.5 to 2.5 per cent. of all pregnant women. The effect that the strain of pregnancy will have on the damaged heart, however, is estimated very variously by different observers. According to one observer, only one-seventh of the cases of valvular lesions develop symptoms during

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

pregnancy, whereas in another series two-thirds of the cases are reported as showing symptoms. Such a marked discrepancy as is shown by these figures would tend to indicate either a difference of opinion between different observers as to what constitutes a valvular lesion, or a difference of opinion as to what constitutes symptoms as a result of the valvular lesion. Probably both hypotheses contain a certain amount of truth. One author considers a certain heart murmur to be due to a valvular lesion which the next observer considers purely functional, and, similarly, one observer classifies certain symptoms as being due to a valvular lesion, while the next considers them due to the pregnancy and believes that the valvular lesion has had no effect in their causation.

This difference in the interpretation of the signs and symptoms has given rise to a marked difference in the attitude assumed by various observers as to the advice to be given a patient who is known to have a valvular lesion, in regard to the propriety of marriage and childbearing. Probably most authorities would agree that it is safer for a patient who is known to have a valvular heart lesion, even though it is fully compensated for the burdens of her ordinary life, not to become pregnant, since pregnancy throws a somewhat increased burden on the already damaged heart, and, therefore, must tend to exhaust the reserve power of the heart. The ultimate result must be to shorten the patient's active life, even though she may not die during childbirth, and the danger of serious cardiac failure increases with each succeeding pregnancy.

The most conservative figures give the mortality of valvular disease of the heart complicating pregnancy as from 5 to 7 per cent., all cases being included, but this is only part of the story, since it does not take into consideration at all the damage which is inflicted on the heart by the strain of pregnancy and labor and the almost inevitable shortening of the patient's active life or the chronic invalidism, which sometimes ensues as a result of the extra burden which pregnancy throws on the already weakened heart, even though the heart is perfectly compensated for the ordinary conditions of life. From my own observations I should advise a patient who consulted me as to the propriety of marriage and childbearing, that it was her right to do as she saw fit in the matter as long as she thoroughly understood the dangers which she ran, that it was absolutely impossible to estimate accurately the danger in a given case, but that certain lesions showed certain general results and that if the satisfaction of having children were worth the risk to her and her husband, she would be justified in taking that risk with the understanding that it would undoubtedly shorten her active life to a greater or less degree, the danger increasing with each succeeding pregnancy, and that a single attempt might prove fatal or that invalidism might ensue. If the heart were perfectly compensated and no sign of renal failure present and if the patient had never had any symptoms as a result of the cardiac lesion, she could probably go through one or more pregnancies under careful supervision without serious danger to life, but the immediate prognosis would depend on the way in which the heart reacted under the strain of pregnancy, which could only be definitely determined by the attempt. If the patient had had attacks of broken compensation when not pregnant, she should be most strongly advised against running the risk, and pregnancy should be held out as a most serious danger, since a heart which has once failed under the burdens of ordinary life is almost sure to prove seriously incompetent during pregnancy.

The nature of the lesion must be taken into consideration in giving a prognosis in the given case. Mitral stenosis is much the most fatal of the single valvular lesions, a mortality of more than 50 per cent. being recorded in several statistical tables. Uncomplicated aortic disease comes next with a mortality of from 23 to 25 per cent., while mitral regurgitation, in cases with no history of previous failure, has an almost negligible mortality. Mitral stenosis when complicated by mitral regurgitation has a more serious prognosis than uncomplicated mitral stenosis. These statistics are not, however, based on patients during their first pregnancy, but include a large number of patients who have been subjected to several pregnancies, and, therefore, cannot be accepted as reflecting the danger in the case of a young woman who is anxious to have one child. A careful study of the statistics of the valvular lesions complicating pregnancy leads to the conclusion that each case must be studied on its merits, since the prognosis which must be given in the case of a multipara who has suffered from a failure of compensation in previous pregnancies and in whom the power of cardiac response is lessened must necessarily be much more grave than that of a young primipara whose compensation has never failed.

In regard to mitral stenosis Lusk states that the diagnosis of this lesion in a pregnant woman calls for an immediate abortion for the safety of the patient, whereas Hirst makes the broad statement that with proper treatment he has no fear of heart disease as a complication of pregnancy, making no distinction as to the nature of the lesion or the previous history of the patient. The truth lies somewhere between these two extremes. Undoubtedly many patients have died under care as expert as Hirst can give, and on the other hand many patients with mitral stenosis have gone through a carefully guarded pregnancy with comparatively little inconvenience. Therefore, in giving advice to the individual patient the factors present in her case must be carefully considered irrespective of what the general statistics show. If a patient, although she has a definite valvular lesion, has never had a failure in compensation, if she is at an age at which her powers of recuperation can be counted on to restore a possible break in compensation, and if she understands the importance of taking care of herself during pregnancy, and can be under careful observation, such a patient may fairly elect to run the risks of pregnancy, if the satisfaction of having children outweighs in her mind the possibility of death, the inevitable shortening of her life and a possible invalidism following the pregnancy, but it is not fair to advise such a patient that it is right for her to have children unless she fully understands the risks involved.

The impossibility of accurately estimating the efficiency of the cardiac muscle in the individual case renders the problem a very difficult one. I have recently seen a young woman of 25 about six months pregnant who was suffering from her first attack of failing compensation, due to a mitral stenosis. At the time when she was first seen her condition was such that the induction of labor seemed to offer little hope for her life, and palliative treatment was therefore advised. Under absolute rest in bed and the use of digitalis her condition rapidly improved, the edema of the lungs, which was very marked, entirely disappeared and the heart contracted down to approximately its normal size. Two competent internists who saw her in consultation stated as their opinion that there was no reason for interfering with the pregnancy, that she would undoubtedly go through to term without trouble if carefully looked out for, and would probably deliver herself without cardiac failure My advice to her was to have the uterus emptied at the thirty-sixth week of pregnancy in order to avoid the dangers of the last month, when the cardiac strain is the greatest She died suddenly during sleep when about seven and a half months pregnant, a few moments before having been perfectly comfortable and apparently in good condition

This illustrates the impossibility of estimating the condition of the cardiac muscle, for if any patient should have been able to go through her pregnancy satisfactorily, a young woman who had only had one failure of compensation from which she had recovered promptly and apparently completely should have been able to do so

The symptoms which we see accompanying cardiac failure are dyspnea, edema of the lungs, general edema, cyanosis and palpitation The occurrence of any of these symptoms indicates the beginning of a failure of compensation, and must be met promptly by rest and appropriate treatment In addition we occasionally see a patient who is doing perfectly well and who without other symptoms suddenly collapses and dies, and, therefore, it is never fair to give an unqualified prognosis in any case of valvular lesion complicating pregnancy irrespective of the previous history of the patient

Unquestionably a great deal can be done throughout pregnancy to improve the patient's chances, and the general hygiene of her life should be kept under careful observation Moderate exercise in the open air, followed by definitely prescribed periods of rest, a careful diet, including comparatively little meat, free catharsis, and frequent examination of the urine to demonstrate the absence of passive congestion or of supervening renal changes will suffice in most cases to prevent untoward symptoms in young women in whom compensation has never failed Small doses of digitalis in the last months of pregnancy will also aid in preventing the development of symptoms Labor should be made as short and easy as possible, even though no symptoms are present In cardiac cases the patient should always be delivered promptly under ether at the end of the first stage so that the strain of the second stage of labor may be avoided If the soft parts are rigid so that it seems probable that the stage of dilatation will be prolonged and exhausting, the substitution of abdominal cesarean section for the other methods of delivery has very definite advantages, and should certainly be considered in the case of a primipara The use of gas oxygen anesthesia has been advised in these cases as a substitute for ether, but I believe that the increased arterial tension which occurs in the preliminary stages in gas anesthesia may prove the determining factor in producing an acute dilatation which may have serious or even fatal results I have seen one case in which it occurred, the patient ultimately recovering

In patients who have suffered from failure of compensation either before or during the pregnancy a more strict routine must be followed Exercise should be reduced to a minimum and massage substituted The slightest sign of loss of compensation should be met by immediate delivery unless promptly restored by rest in bed and the use of digitalis, and the pregnancy should be terminated at about the thirty-sixth week or shortly after if renal changes are present whether of a chronic or toxemic nature With an attending high blood-pressure it is wiser to empty the uterus early and not allow the extra burden to wear out the already damaged heart If a patient with a valvular lesion is allowed to go into labor she must be carefully watched throughout, and the labor shortened as much as possible She should be delivered at the end of the first stage of labor in any case, and earlier if any symptoms arise, since the greatest danger comes during the second stage when the most marked changes in the blood-pressure develop and the strain on the heart is increased The few hours immediately succeeding delivery are an exceedingly dangerous period since the heart is peculiarly liable to collapse with the drop of blood-pressure which follows delivery

If an acute failure of compensation occurs during labor it should be met by prompt measures and delivery should be completed as rapidly as possible Venesection with the extraction of a pint of blood, or possibly more, will take the load off the distended right heart and allow the heart to shrink down The use of digitalis, strychnin, etc may prove of great advantage but the most important thing at this time is to relieve the strain by emptying the uterus as quickly as possible

ACUTE DILATATION OF THE APPARENTLY NORMAL HEART

There are certain patients in whom no heart lesion is demonstrable during pregnancy and whose previous history contains nothing to suggest the possibility of a cardiac weakness, in whom the changes in blood-pressure which occur during labor, particularly during the second stage, result in acute dilatation of the heart with symptoms which may cause the greatest anxiety Although it is not possible to determine in advance that a given patient will develop this condition, we can recognize the classes of patients in whom acute dilatation is most liable to arise Pregnancy is for the average woman a period of general development, and the patient should be in better condition at the end of pregnancy from a purely physical standpoint than at any other time The patients in whom acute dilatation of the heart is most liable to develop are those who do not conform to this rule The patients who for some reason are unable or unwilling to take proper exercise during pregnancy and so come to labor in a generally flabby condition are unquestionably the patients among whom we find most of the cases of acute dilatation at the time of labor A second class of patients among whom this condition is particularly common includes patients suffering from a low grade toxemia during pregnancy who perhaps develop a slight albuminuria and show other toxemic symptoms, not of a sufficient severity to warrant interference with the pregnancy, but of a degree to cause some apprehension as to the result in the mind of the attendant

The patients of the first class come to labor muscularly flabby and in poor condition to withstand a severe physical strain, the heart muscle is presumably in a similar condition and therefore is unable to respond properly to the extra work which is thrown on it during labor In the patients of the second class it seems probable that a certain degeneration of the heart muscle has taken place during pregnancy owing to the toxemia which is present so that the heart is really abnormal, although the abnormality cannot be demonstrated by physical examination In both classes of patients labor usually goes on normally until toward the end of the first stage or even to the end of the second stage, the heart however, showing signs of tiring as evidenced by the rising pulse When however, the power of response is exhausted acute dilatation takes place with its accompanying symptoms, cyanosis, dyspnea, rapid pulse and the ordinary signs which accompany a failure in compensation of a valvular lesion

Prophylaxis is of great importance in the treatment of cases belonging to either of these types The administr tion of digitalis in small doses for two or three weeks before the onset of labor will in many cases prevent an explosion, and all hygienic measures which may improve the patient's general condition are of the greatest importance When labor begins the patient should be watched most carefully from the start, so that if any sign of undue reaction to the strain of labor appears, the patient may be delivered promptly before the severe symptoms develop The labor shouuld be cut short by operative delivery either at the appearance of symptoms or at the end of the first stage in all patients who are muscularly in poor condition or who have shown signs of toxemia during pregnancy, whether they seem to be reacting unfavorably to the labor or not

Patients treated in this way will seldom develop alarming signs of acute dilatation If, however, acute dilatation occurs in spite of the precautions or if the precautions have not been taken, it demands adequate treatment Venesection, to diminish the strain on the dilated right heart, will prove of great value for treatment in the emergency, while the use of digitalis, morphin and strychnin usually results in restoring compensation promptly, even in cases which seem desperate, and the prognosis is usually good if the patient is adequately treated, but the treatment must be prompt and active to be of value

MYOCARDITIS

Myocarditis is a condition the diagnosis of which is so difficult that it rarely can be made during life It may, however, prove a most serious complication of pregnancy and is undoubtedly one of the most frequent causes of sudden death during or shortly after labor, as is shown by autopsy findings Any unusual cardiac action during the latter part of pregnancy or during labor may be classed as due either to myocarditis or to a neurosis, and the impossibility of determining during the patient's life under which category the symptoms should be placed makes it impossible to give a definite prognosis in the given case The treatment is unsatisfactory owing to the difficulty of diagnosis If it were possible to recognize definitely the existence of a myocarditis, prompt delivery at the onset of the unusual cardiac symptoms might result in saving the lives of some patients who, if allowed to complete their term of pregnancy, would otherwise die, whereas the neuroses seldom require treatment If a careful physical examination reveals nothing abnormal and the urine is negative, it is usually fair to assume, at least in a patient under 35, that the condition is neurotic and will require no treatment

CONCLUSIONS

1 Any organic heart lesion, even if perfectly compensated under normal conditions, should arouse apprehension and call for constant watchfulness if pregnancy supervenes

2 In case pregnancy comes as a complication when the heart is imperfectly compensated, the uterus should be immediately emptied, since a heart which has failed under the ordinary burdens of life has no chance of sustaining the added burden of pregnancy

3 When a heart which has been previously well compensated fails during pregnancy, an attempt must be made to restore compensation by rest and appropriate treatment, but unless the attempt is promptly successful the pregnancy should be ended

4 If compensation has failed during one pregnancy, future pregnancies should be absolutely forbidden

5 In any case in which an organic heart lesion can be demonstrated, even though it may have caused no symptoms during pregnancy, labor should be regarded with apprehension, and every measure should be taken to shorten the labor and thus relieve the heart of a serious burden, although it may seem to be doing its work perfectly well

6 A patient with an organic heart lesion will usually stand an operation well if the operation is performed at a time previous to a failure in compensation On the other hand, an operation after failure of compensation will often prove fatal in patients who would have stood operation well at an earlier time

7 Any patient known to have an organic heart lesion who is contemplating marriage should be advised of the dangers pertaining to pregnancy and labor, the prognosis in the individual case depending on the nature of the lesion, the age of the patient and her previous history as regards the efficiency of the heart under normal conditions

8 It is impossible to estimate accurately the efficiency of the cardiac muscle in any patient in whom a failure of compensation has once occurred, since although compensation may have been promptly restored under treatment, she may die suddenly before, during or after labor, without warning

9 Labor should be shortened as much as possible in every patient who has a demonstrable heart lesion although no unfavorable symptoms may have arisen In primiparas the propriety of a cesarean section to relieve the heart of the strain of labor may be very properly considered in any case, particularly if the soft parts are rigid, since it is poor policy to test the endurance of a given heart unnecessarily

10 The demonstration of a mitral stenosis should call for the most careful observation Any sign of failing compensation should be met promptly, and if any condition supervenes which is accompanied by a rise in arterial tension, the pregnancy should be terminated at once

379 Beacon Street.

ABSTRACT OF DISCUSSION

Dr Alfred Stengel, Philadelphia So far as the individual lesions are concerned I think there can be no doubt that it has been established that mitral stenosis is the most dangerous cardiac lesion I believe, however, that we should scrutinize statistics a little more carefully, because there are many more cases of mitral stenosis of not very pronounced type which are overlooked than of mitral regurgitation. During the last five or six years I have been inquiring with some care into the histories of pregnancy in women in whom mitral stenosis was recognized late in life, and I have been surprised to find, contrary to my preconceived ideas based on this statistical evidence, how many cases I have met of women who have gone through multiple pregnancies with mitral stenosis A few figures must not be relied on absolutely When we are taking cases of recognized cardiac disease and trying to determine the mortality of pregnancy in such cases, we are not to overlook the case of mitral stenosis in which the physical signs are not very distinct We have no proof that the heart does actually hypertrophy during pregnancy, but what is of much more importance, there is no doubt that the apex of the heart is displaced during pregnancy, that murmurs are frequently produced by mechanical enlargement of tissues, etc, and that consequently the diagnosis of heart disease is easy to make during pregnancy, and when heart disease does not perhaps actually exist

We have heard of the desirability of therapeutic abortion for tuberculosis on the one hand and cardiac disease on the other hand. I think this is a proposition which the profession in general must approach with a good deal of hesitation It throws open the doors to therapeutic abortion too widely The desirability of abortion in certain cases cannot be doubted, but we want to be sure that there are no pitfalls such as the possibility of supposing heart disease exists, whereas we are dealing only with functional derangements incident to the pregnancy

The outlines of the treatment given seem to me excellent and could not be improved I have seen in consultation patients who have been treated throughout the whole pregnancy for cardiac weakness and who have gone through the subsequent labor very well and I believe on account largely of the careful treatment carried out through the entire pregnancy We ought to recognize that there is a middle ground Some cases must be brought to termination at once, but the great majority I think can be allowed to go on I believe that the author of the paper has exaggerated somewhat the danger that pregnancy may shorten life in women with such cardiac lesions

DR. HAROLD C BAILEY, New York It is very interesting to recall that Dr Mackenzie was first led to undertake his heart work by noticing that pregnant women frequently had marked jugular pulsation, and he designed an apparatus to take tracings of this pulsation. I think Dr Newell should more clearly define his position in regard to treatment at term We see quite a number of patients brought into the hospital with loss of compensation and in labor, and I believe it is very much better to treat them by restoring or attempting to restore their compensation, and allowing the labor to take care of itself Crystallized strophanthin is similar to digitalis but perhaps does not raise the blood pressure to such an extent Deep intramuscular or deep intravenous injection is quickly effective The dose of the drug is ½ mg, which is about equal to a teaspoonful of digitalis Reaction occurs in from four to six hours and lasts twelve hours Probably not more than 1 mg should be used during the twelve or twenty four hours I have used it in labor and it restores compensation I have used the drug also a great many times in heart disease, and published a paper on it some years ago The drug is practically inactive in ordinary doses by mouth, but very active by subcutaneous or intramuscular injection

A NEW METHOD OF TREATMENT OF ULCER OF THE STOMACH *

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My method is a combination of the various beneficial remedial measures proposed at one time or another for the cure of ulcer of the stomach It is a method of methods The diet is original The other procedures, except for details, are not The diet is vastly different from the very sparse diets of the von Leube and the Lenhartz ulcer cures My method does not require a stay in bed The patient goes about his business as usual Hard work, however, should be forbidden I have had very little experience with it in the acute cases of ulcer of the stomach, and I do not know its field of usefulness in those cases, my experience having been confined solely to the chronic type of ulcer of the stomach As a rule those are the cases that yield least to medical means, but my experience has been most gratifying with them I should also like to state that while some of the patients cured by me had typical ulcers the majority of the cases were not of that type They belonged to the type which years ago was called hyperacidity, but which the extensive experiences of surgeons, notably Moynihan, the Mayo brothers and others during the past few years, have shown conclusively to be ulcers In other words, if a patient complained to me of suffering with pain in the stomach, heart-burn, belching and sour eructations coming on from one to five hours after meals and relieved by the ingestion of food, vomiting or an alkali, I called it an ulcer of the stomach or duodenum, regardless of whether such classical signs as a tender point, occult blood or hematemesis were present or absent In spite of Moynihan's contention that patients presenting the symptoms of hyperacidity coming on four or five hours after meals, which means duodenal ulcer, must be operated on, as they can never be cured by medical measures, I have repeatedly cured such patients by my method To those of my medical colleagues who would not be convinced that the syndrome of pain, heart-burn, belching and sour eructations coming on one or more hours after meals means a duodenal or gastric ulcer, I offer my method as a specific for that syndrome As far as I know those symptoms of hyperacidity not only could never be cured, but they could not even be relieved, except for a little while

My success has been most pronounced in the simple uncomplicated cases of ulcer in which the stomach has not been distorted or deformed by adhesions, cicatrizations, perforations, connections with other viscera, or narrowing of the outlet That such complications do not exist in a given case can be demonstrated by the patient merely complaining of pain, heart-burn, belching and sour eructations coming on one or more hours after meals, without any great suffering at the least indiscretion in diet, without copious and numerous hematemesis, without great loss of flesh and strength, when on physical examination the stomach is found not to be much dilated, not to splash at the least touch, and when the motility is not disturbed I have cured patients of the more complicated variety of cases in which considerable stasis of food was a factor, and yet at the end of the treatment the patient had regained his normal motility

Every case that I handled was of long standing, extending for years, and each patient had undergone treatment at the hands of numerous physicians without success I have a letter from a woman who suffered from a typical duodenal ulcer for fifteen years stating that the last winter was the first in all those years that she was free from stomach trouble

There are some cases of very obstinate constipation extending for years in which the syndrome mentioned by me may be obtained by questioning the patient I thought that the constipation might possibly be due to an ulcer of the stomach, as gastric ulcer patients suffer much with constipation The treatment failed in one or two cases that I tried, and there is no doubt in my mind that those cases were not ulcer cases

The treatment must be carried out precisely, to all its details, by both the physician and patient, else it is a failure My results with clinic patients have been unsatisfactory, while they have been excellent in my private patients I finally would like to mention here that pain belching, heart burn, etc, simulating somewhat an ulcer history may be present with disease of the appendix gall bladder or pancreas I am also fully aware of the fact that a large number of gastric and duodenal ulcers have their spontaneous ups and downs and their seasons The patients recover spontaneously under some care with diet, to relapse in the future Under [illegible] tions one is [illegible] to dra [illegible] deductions as to the efficacy of any plan of treatment That the patients were cured by me and not spontaneously is evidenced by the fact that under my regimen of treatment every patient invariably came back for the next examination one week later much improved, if not feeling well

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* Read in the Section on Practice of Medicine of the American Medical Association at the Sixty Third Annual Session, held at Atlantic City, June 1912

METHOD OF TREATMENT

In devising a plan of treatment for ulcer of the stomach several objects are to be kept in view

We must give an appropriate diet

We must give something to cure the ulcer

We must check the flow of hydrochloric acid which interferes with the healing of the ulcer

We must combat the stasis of food, if there is any, in case the ulcer is situated in the pyloric or duodenal region with a resulting narrowing of the outlet

We must combat a continuous flow of acid from the stomach, if there is any

The ideal diet in ulcer of the stomach must have the following characteristics It should be bland and nonirritating to the ulcer and the mucous membrane of the stomach It should cause the least secretion of hydrochloric acid It should leave the stomach in the shortest possible time With these qualifications it should combine the highest possible caloric value These objects are accomplished by the following dietary directions, a copy of which must be handed to the patient

> Eat slowly Chew your food well
>
> Patient may take bread (white only), zwieback, toast, soda crackers, corn flakes, farina, cream of wheat, potatoes (mashed only), eggs (soft boiled, may try also hard boiled, if they agree), cream cheese, butter (in plenty), sugar, fish (boiled only, without the skin, without bones), raw or stewed oysters, baked apple (without the skin, without core)
>
> Drinks Water, milk, buttermilk, matzoon, prepared buttermilk, vichy, weak tea (in moderation only), cocoa
>
> Patient must not take any other food No food should be fried. Use very little seasoning, just the least bit of salt

It is seen that meat and broths are excluded from the dietary, for, as shown by Pawlow, of all foodstuffs, meat extractives are the greatest stimulants of gastric secretion

This diet must be strictly adhered to for four weeks, then easily digested meats and soups are added The diet is agreeable to most patients and its caloric value is high enough, so that most of them gain flesh, while I have never seen any one lose The meats that are added are broiled steak, broiled lamb chops, boiled beef and chicken The patient should be instructed to remove, while eating, all tendons, sinews, veins, ligaments, tough parts and skin of all meats and poultry The charred and burnt parts of the top layers of broiled or roast meats should be removed Meats may be roasted, broiled or boiled, but not fried

Soups and broths may be of different kinds They must not contain any vegetables of any sort (unless, perhaps, carefully strained) The vegetable cellulose acts as a mechanical irritant to the ulcer, as well as to the mucous membrane Moreover, vegetables stay very long in the stomach Potatoes are permissible The cooking should be of the simplest kind

To cure the ulcer I give bismuth After a good deal of experimentation, as to kind and dosage, I finally settled on the subcarbonate, in doses of 4 gm (1 dram), to be given once a day in the morning on an empty stomach, in a tumbler of buttermilk thoroughly stirred up The patient must not have anything afterward for one hour As shown by radiographs the bismuth distributes itself all over the stomach It thus soothes and heals the ulcerated surface of the stomach Bismuth shows cumulative tendencies within the intestinal tract and I found it expedient to clean it out thoroughly once a week by the administration of a dose of castor oil I order 1½ tablespoonfuls for this purpose

To check the flow of hydrochloric acid I employ two plans One consists in giving atropin sulphate from 1/150 to 1/100 grain three times a day ten or fifteen minutes before meals, or extract of belladonna in doses of one-fifth grain This serves the purpose of diminishing the flow In addition to it I give an alkali in the form of magnesium oxid in doses varying from 5 grains to 1 dram, according to the condition of the bowels, the average dose being one-half dram The bowels are usually constipated in ulcer cases, and through the administration of the magnesium two birds are killed with one stone, namely, the acidity is neutralized and the bowels regulated The bowels must be regulated just right, else the treatment does not work If the bowels happen to be normal or rather loose, which is uncommon, we give the bicarbonate of soda instead, in doses of 5 grains to 1 dram Some cases require a combination of the two The alkali is administered about one or two hours after meals in about 2 ounces of water Most patients do well on this plan

For some patients who do not do well on this plan I give instead of the belladonna and the alkali, olive oil in doses of 1 or 2 tablespoonfuls ten or fifteen minutes before meals Oils, as shown by Pawlow, diminish the secretion of hydrochloric acid The oil also relieves the constipation I met no difficulty with the patients taking it A good oil should be administered I prescribed a French olive oil

The stasis of food, if there is any, is met by lavage of the stomach which is done seven hours after the meal The best way to manage is to have the patient take his luncheon about noon and eat nothing up to about 6 30 p m, when the stomach is thoroughly washed out If there be but a little food present, once a week is sufficient If there be considerable food present, it should be done twice a week In addition if there is much food present the patient is instructed not to eat anything until the next morning This serves the purpose of giving the stomach a good rest over night[1] In case of food being present seven hours after a meal, which implies a narrowing of the pylorus or the duodenum due to cicatrization, I also massage the stomach and pyloric region, provided there is no contra-indication, such as great tenderness over that region

The motility of the stomach must be determined in every case of ulcer before starting the treatment This is done by giving a regular dinner and washing out the stomach seven hours later, the patient must not ingest any food or drink in the interim If food is present the motility is impaired, if food is absent the motility is normal[1]

The continuous flow is treated with the same remedial agency, lavage of the stomach once or twice a week I add bicarbonate of soda to the wash-water It is needless to remark that washing ulcerated stomachs requires some skill and caution I never met with any mishaps In case of a large quantity of food being found in the stomach seven hours after a meal, the patient should be told to have a regular dinner in the evening, the stomach is washed out the next morning before breakfast, and if considerable food be found it means that the patient is suffering with a pyloric or duodenal obstruction, and the case is not suitable for medical treatment A case of this order requires a gastro-enterostomy

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[1] Weinstein Atony of the Stomach, New York Med. Jour Aug 20 and 27, 1910

The last step in the treatment is the application of wet compresses to the stomach every night The patient sleeps through the night with it and removes it in the morning

This course of treatment is carried out for eight weeks I make it a rule to see the patient once a week The patient is to be questioned every time carefully, whether or not he carries out the instructions correctly, for most patients are improved as soon as the treatment is instituted, and are apt to transgress the dietetic rules I found a good many taking candy, especially chocolates This is most objectionable, for candy creates hyperacidity It must be strongly emphasized to the patient that the treatment will lead to no results unless it is carried out correctly to its minor details About the fourth or fifth week the dose of bismuth is diminished to 3 gm, then to 2 gm At the end of eight weeks it is stopped altogether, and the patient is discharged as cured with the following dietetic rules to be kept up for at least six months

Avoid fried foods, fatty meat, sausage delicatessen, sardines, caviar, cabbage, canned foods the tough parts, veins, sinews and skin of meats and poultry, the stones, pits, seeds and core of fruits and berries, liquor, radishes pickle, smoked salmon, herring, the bones of fish, highly seasoned foods

RESULTS OF TREATMENT

The results are very satisfactory, and the patients who come back one week later, as has been the custom in most of my cases, invariably report that they feel much better Letters were sent out by me to ascertain the present conditions of the patients and the following is a brief summary of one and a half years' work

Fourteen patients have been cured entirely up to the present date After about half a year, four, none of whom carried out the treatment precisely, had recurrences There was marked improvement in three patients, one of whom had a case with complications this patient is in very good condition now With two patients the treatment failed to do good One was a man over 60 with a typical story of duodenal ulcer and considerable stasis of food, the other a woman who had numerous and copious hemorrhages for several years There were strong suspicions of malignant implantation in both Several patients are under treatment at present and are doing well

All my cases were of long standing, dating as far back as fifteen years, with treatment at the hands of a large number of practitioners It should finally not be forgotten that ulcers of the stomach and duodenum with complications, such as adhesions, hour-glass contraction of the stomach, narrowing of the outlet, perforations and connections with other organs, can never be completely cured by any method of medical treatment and must have surgical interference for their relief

The great value of the method is its simplicity and lack of sacrifice on the part of the patient in carrying it out No patient with a simple superficial ulcer who suffers only from some heart-burn, belching, etc for a couple of hours a day, will agree to subject himself to stay in bed and carry out the stringent regulations of the von Leube or Lenhartz cure It is only when the ulcer becomes severe and threatening and occasions a great deal of suffering or vomiting of blood, that the patient will be forced to undergo those cures No patient however will refuse to carry out the simple method of treatment which I propose This simplicity of treatment, combined with the ease and simplicity in diagnosis as revealed lately through surgical research will, I hope, enable the physician to attack ulcers of the stomach and duodenum in their incipiency and thus prevent the onset of complications and possibly even the malignant transformations of ulcers

71 East Ninety Sixth Street

ABSTRACT OF DISCUSSION

Dr. Arthur A Gillette, Rome N Y I endorse what Dr Weinstein has said concerning the use of atropin and other belladonna preparations in the treatment of ulcer of the stomach, be sure of the quantity of your atropin and guard the physiologic effects

Dr. Julius Friedenwald Baltimore Ulcer of the stomach is a very serious condition and should be taken in hand early A few weeks ago I reported a series of 1 000 cases at the meeting of the Association of American Physicians at Atlantic City, and attempted to show that if one treated these cases by the rest cure from 72 to 74 per cent of cures could be obtained and if treated surgically 74 per cent When one attempts the treatment by means of an ambulatory cure with nitrate of silver olive oil bismuth and so forth only 40 to 50 per cent of the patients recover At the beginning we have difficulty often in determining just what we have to deal with The symptoms however become more and more aggravated, and then we cannot look on the condition too earnestly I believe in the efficacy of rest in bed many failures to cure result from not keeping these patients in bed long enough Often a stay in bed of three or four weeks is not sufficient and the rest in bed should be prolonged to even six or eight weeks

Dr Charles D Aaron, Detroit Bismuth treatment of ulcer was emphasized by Kussmaul in the eighties Alkaline treatment with belladonna or atropin was suggested about fifteen years ago by Riegel and Cohnheim published a description of the olive oil treatment a few years ago Dr Weinstein has done well to advise restriction in the administration of the extract of beef on account of its stimulating effect on the secretion of gastric juice as proved by the researches of Pawlow Cellulose, we all know is very irritating to gastric ulcer I cannot therefore see any benefit in giving the patented foods shredded wheat biscuits and corn flakes which are rich in cellulose

Dr Albert F Roussel Philadelphia Apparently the proportion of free hydrochloric acid in the analysis of the stomach contents is no longer considered as important as it was in the past In cases of gastric ulcer this may be normal or there may be a slight diminution yet in the majority of the cases the free hydrochloric acid is increased in amount I think what is of great importance is the presence of occult blood in the feces Of course an examination of the gastric contents is very important but I think an examination of the feces is of great importance as well Whether the case is one of acute or of chronic ulcer of the stomach or duodenum, look for occult blood in the feces I am inclined to believe that certainly a large number of cases are made decidedly better by the employment of the rest cure Those of us who are connected with hospitals and with the dispensaries treating these patients under the so called ambulatory treatment know that they do not do so well They need more rest in bed, thus treatment turns the scales in their favor

I have been teaching medicine for twenty years and I am more skeptical than ever about 70 per cent of cures by medical treatment You will find that patients will return to you five six eight or ten years afterward with all their symptoms in an aggravated form The condition had been going on, as shown by the radiographic views with malformation and maladhesions of the stomach for a long time If in the course of three months and in some cases a year time there is no amelioration in the sy[illegible]ms of gastric ulcer and with the pr[illegible]ult bl[illegible]e feces, even wh[illegible] the symptoms are not absolutely pronounced, I make it a rule to call in a surgeon for operation I do not believe, however, in calling in a surgeon to make a diagnosis, surgeons rely too much on an exploratory incision to make their diagnosis We do not need them to make the diagnosis We call them in when we want them to operate for us Moreover, I do not think there is any doubt at all but that many cases of gastric carcinoma are found to be present on the seat of a previous gastric ulcer

Dr Louis M Allyn, Mystic, Conn I do not believe that the method of treatment of gastric ulcer as outlined by Dr Weinstein is entirely new I have tried various methods in the treatment of this disease. The ambulatory treatment of gastric ulcer is all right if one cannot get the patient to go to bed. A woman with three or four children to support who works in a factory or in a mill will not go to bed for six weeks "Go to bed? Who feeds the kids?" These patients must have some treatment that keeps them out of bed and, therefore, I think that Dr Weinstein's treatment is very good indeed, helping as it does this particular class of patients In the diagnosis of gastric ulcer many difficulties are encountered I know of one patient who went to three or four experts in different cities and each diagnosed some different gastric disease There did not appear to be a true condition of gastric ulcer, but something that simulated it If the same treatment will cure in these different cases, it does not matter what one calls them It takes a surgeon to give the true diagnosis

After we have eliminated the pain I find that autocondensation with the high frequency current helps these patients When there have been recurrences after five or six years I think that in nine out of ten cases, they have been due to intemperance in eating or drinking or both If these patients could be made happy, could be made to sleep well and feed well, I believe that everything would be all right

Dr A W Calloway, Asheville N C An important point is that we should not expect to get much help from the surgeon in making a diagnosis of ulcer of the stomach These cases should be diagnosed in the office and not in a surgical clinic

Dr M Milton Portis, Chicago I do not agree with the results stated by Dr Weinstein Not all cases of real ulcer can be cured by his or any other method I have been doing experimental work along these lines and can refer only in brief to my publications There is one point that is not sufficiently emphasized In ulcer it is not so much a question of hyperchlorhydria as it is a hypersecretion If a larger amount is secreted the surplus of free acid will be greater than if a smaller amount is secreted The percentage secreted remains a constant. The aim then should be to control the amount secreted. If the diet includes meat, secretion will go on for seven or more hours, as compared with two or three hours when meat is excluded Again, if an alkaline salt is given a half hour before meals, the total gastric secretion will be diminished, for the alkali on reaching the duodenum reflexly checks secretion in the stomach. Finally, no matter what the type of treatment, it is by far better to start the cure by a sufficiently long enough period of rest in bed

Dr Anthony Bassler, New York I agree with what Dr Friedenwald has said in regard to the treatment of such patients by rest in bed The heart then beats from ten to fifteen times less often a minute The stomach is improved by this rest and the amount of hydrochloric acid secreted is less I think that these are very valuable essentials in the treatment of ulcer of the stomach

One should be very careful not to make such a diagnosis of ulcer of the stomach merely on the presence of hyperacidity or hypersecretion The statement has been recently made that a diagnosis of ulcer of the stomach could be made when there was present an increase in the amount of hydrochloric acid and particularly when no food is in the stomach, but clinically this is not a fact that can be depended on alone

Dr Wilder Tileston, New Haven, Conn The diet tables do not seem to be any different from the ordinary diets that are used against hyperacidity I think it is a diet that is used extensively by many clinicians It is impossible to say how many of these cases of Dr Weinstein will relapse on account of the short time they have been under observation

Dr J W Weinstein, New York It was argued that belladonna and its derivatives often cause unpleasant symptoms I can state from a very extensive experience (for aside from the cases reported here I treated a large number of cases at the Vanderbilt Clinic), that in the doses employed by me I have never seen any unpleasant results, save a slight dryness of the mouth in some cases I did give bigger doses before and I had to abandon them We should not prescribe belladonna in liquid form and then employ the teaspoon as a measure, for it is well known that the teaspoon contains more than a dram An exception was taken to what some called my loose methods of diagnosis My methods of diagnosis of ulcer of the stomach and duodenum are based on the unanimous deductions of the foremost surgeons of the age—deductions that are founded on careful studies and corroborated by exploratories on hundreds of cases Finally, an objection was offered that there was nothing new in my method Bismuth was used by Kussmaul years ago, said Dr Aaron On the surface, this objection would appear to be valid, but I stated in my paper that my method was a combination of different remedial measures proposed by others. The whole combination, however, is certainly new There are two methods in vogue in the treatment of ulcer of the stomach, the Von Leube and the Lenhartz cures It is evident that my method is as far from the method of Von Leube with its stay in bed and rectal feeding, or from the method of Lenhartz with its stay in bed and feeding on raw eggs and milk by the teaspoonful, as north is from south

I know very well that bismuth, magnesium oxid, belladonna and olive oil were employed in the treatment of ulcer of the stomach. It is from Kussmaul, Fleiner and other authors that I got these ideas, as stated in my paper But so was potassium iodid recommended and used in the treatment of meningitis! I ask, however, how many meningitis patients did potassium iodid ever cure? I ask again, how many cases of ulcer of the stomach or duodenum did bismuth, magnesium oxid or belladonna ever cure? They never cured and never will It is only the whole combination in my method that does the work That combination must be carried out in all its details, else there is no result

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HUNGER PAIN *

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Hunger pain is a sensation of gnawing distress in the stomach coming on several hours after meals It varies greatly in its intensity and may be described as a mere soreness in the epigastrium, or it may assume the form of a burning pain of sufficient severity to occasion real suffering It is often accompanied by a feeling of impatience and irritability of temper, which renders it difficult to continue work or to concentrate the attention It prompts the patient to lie down and may be partially relieved by heat or gentle steady pressure on the epigastric region It occurs in some cases three hours after meals and continues until the next meal is eaten, or it may persist for an hour or two and then abate without the ingestion of food It is usually unaccompanied by eructation or regurgitation, but in its more severe grades nausea of some degree coexists and vomiting may occur

Hunger pain is not an accompaniment of any constant or invariable chemical state of the stomach As a rule hydrochloric acidity is high or actual hyperchlorhydria exists, but lesser or even very low degrees of acidity are often found The pain does not depend altogether on the acidity, as many patients are found to have high percentages without it Notwithstanding these facts it must be admitted that hyperchlorhydria, with its other manifestations, is the condition most frequently found in cases presenting the symptom referred to here as hunger pain

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* Read in the Section on Practice of Medicine of the American Medical Association at the Sixty Third Annual Session, held at Atlantic City June, 1912.

It is, or may be, associated with gastric ulcer near the pylorus For many years it was taught that the pain of ulcer of the stomach followed early on the ingestion of food, and it was not until a more intimate acquaintance with gastric diseases was acquired that it became known that burning gnawing distress or pain occurring many hours after meals was not infrequently present with pyloric ulcer

The location of the ulcer has much to do with the incidence of the pain in its relation to the ingestion of food If it is in or near the fundus, or is situated proximal to the vestibule, some degree of discomfort or actual pain follows soon after eating There is a popular impression that hunger pain occurs only with an empty stomach, but it is usually at its height with a highly acid chyme, which passes through the pylorus slowly and with difficulty The retarded passage of the gastric contents into the duodenum may depend on pyloric spasm from any cause, or on a benign organic narrowing of the pyloric ring In cases with gastric ulcer near or at the pylorus, or with pyloric irritability and spasm the pain is usually well localized to the pyloric region of the stomach, but in cases having organic stricture resulting in the retention of a large amount of superacid contents, the pain is more generally distributed over the gastric area, and it often extends to the region of the cardia The distress is not only more diffuse, but supervenes sooner after eating than is the case in ordinary hyperchlorhydria and is more apt to be accompanied by vomiting which gives relief

The reason food ingestion gives rise to temporary relief in cases of ulcer at the pylorus is probably that its alkaline constituents neutralize the hydrochloric acid and its protein elements combine with it The nature of the ingesta has a large influence on the incidence of pain Acids, condiments and coarse, irritating articles of diet are soon followed by marked discomfort, whereas milk and cream, soft eggs and other bland foods give a longer respite from distress This particular type of epigastric suffering more often attends the common peptic ulcer than the multiple erosions or hemorrhagic erosions described so well by Mathieu

Hunger pain is, as would be expected a rather constant result of duodenal ulcer, in which disease the ulcer area is rested and relieved until such time as the acid gastric contents enter the intestine in more copious amounts We are indebted to Moynihan for emphasizing the importance of 'hunger pain" as a symptom of duodenal ulcer He regards the symptom as positive and diagnostic He also considers hyperchlorhydria as being equivalent to duodenal ulcer It should be remembered, however, that duodenal ulcer not infrequently exists without pain and hemorrhage may be the first symptom to herald its presence

In the earlier years of my work I was under the impression that this symptom occurred only in hyperchlorhydria and I recall with distinctness the first case in which I found achylia gastrica associated with it The patient was a man who had definite gnawing burning pain about three hours after each meal and who was thoroughly relieved by eating the next meal Several instances of achylia gastrica with hunger pain have since come under my observation Some of these cases presented evidences also of chronic gastritis It may be a symptom of acid gastritis, especially the stenosing gastritis of Boas, it is also found occasionally in catarrhal gastritis in cases in which the contents show an excessive amount of mucus and a low acidity

It is present in gastrectasia, and is quite often found in cases of gastroptosis, enteroptosis or nephroptosis Boas has dignified a condition in which pain with an empty stomach occurs as gastralgokenosis Hunger is not present in this condition but prompt relief is given by eating There is little, if any difference between this condition and that which may be termed hunger pain The element of hunger is inconstant at all events it may or may not accompany the distress In hyperorexia or parorexia the sensation of hunger may become so intense as to amount to, or merge into, actual pain Gastric hyperesthesia is closely related to the distress which is relieved by food ingestion, and is, indeed an important factor in the production of the symptom-complex Reichmann's disease, or gastrosuccorrhea continua, is also a state allied to those discussed above, and in this affection, contrary to the experience in simple hyperchlorhydria, epigastric distress may be present in the early morning before breakfast

Not only may this late postprandial gastric suffering result from a variety of chemical and nervous disorders of the stomach, but it is found in patients with disease of other abdominal organs Of these diseases the most common are pathologic conditions of the gall-bladder and appendix Among diseases of the gall-bladder, cholelithiasis or cholecystitis with pericholecystitis, possibly involving the pylorus or duodenum, may produce late gastric pain after meals Among diseased conditions of the appendix, chronic appendicitis with adhesions and deformity is the morbid state frequently underlying the incidence of late postprandial gastric suffering The explanation of this probably lies in the ready response of the neuromuscular apparatus of the stomach to an irritative focus near or remote from it

In some cases the symptom is an accompaniment of anemia or of a low state of general nutrition and strength In such patients periods of discomfort occur from loss of sleep anxiety, fatigue, both nervous and physical, and from dietary indiscretions with overtaxation of the stomach, from eating too large amounts of food and to the drinking of alcoholic beverages especially the rich, sweet wines and champagnes

The treatment of the symptom should be guided by a consideration of its cause, the regulation of the diet the giving of alkalies and gastric sedatives, the observance of proper rest, or the wearing of a suitable abdominal support, the administration of tonics and the employment of lavage or operative measures, as the case may demand

In conclusion it is my desire to emphasize the need of careful consideration and study of patients who are afflicted with this late postprandial or anteprandial, suffering in the epigastrium It seems an error to arrive too hastily at a diagnosis of gastric or duodenal ulcer in these cases, and to hurry the patient to a gastro-enterostomy on the evidence of this symptom alone

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ABSTRACT OF DISCUSSION

Dr. M A Cohn Brooklyn Is the hunger of diabetes mellitus, according to Dr Jones classification a hunger pain What is the real difference between hunger pain and hunger plain, unless it be the difference between the physiologic hunger of the normal individual and the morbid hunger as a pathologic condition? Is it not perhaps the degree of hunger that makes the distinction between the two? At all events it is not wise for the practitioner to base his diagnosis on one symptom alone, unless it be one that is always present in a certain disease and decidedly pathognomonic.

Dr. Walter L. Bierring, Des Moines, Iowa. Unless more fortunate than others, I feel that we have all had some personal experience with the hunger pain referred to by the essayist. I can also recall clinical histories in which errors were made in not properly interpreting the symptom of hunger pain. This is a valuable contribution because it sounds a warning against a too ready acceptance of this symptom as an indication of ulcer or preulcerous condition of the stomach, and emphasizes the necessity of correlating all the symptoms before making such a diagnosis. In this connection it should be remembered that a condition of hyperesthesia is peculiar to some individuals, and this should not be overlooked in interpreting the phenomenon of hunger pain.

Dr. Wilder Tileston, New Haven, Conn. In my opinion more emphasis should be laid on the frequency of duodenal ulcer as the underlying cause of pronounced hunger pain. Many of these cases show no increase in hydrochloric acid, in the majority of the cases I have seen there has not been an abnormal amount of acid. I think that in this Section we are more likely to overlook these cases and treat them as cases of acid dyspepsia when they should be turned over to the surgeon, whereas in the Section on Surgery the reverse might be the case. I have had three or four patients recently who had been treated from five to twenty years for dyspepsia, they all had definite duodenal ulcers, and all were completely relieved by the performance of a gastro-enterostomy. We should remember the words of Moynihan that persistent hyperacidity that is not relieved by medical treatment is almost always duodenal ulcer. Many of these patients show no symptoms beyond these of hyperacidity, there is no hemorrhage, no occult blood in the feces, and the diagnosis is based mainly on the history.

Dr. Charles G. Stockton, Buffalo, N. Y. While it is perfectly proper to listen to what Moynihan states about the importance of hunger pain, we must admit that hyperchlorhydria occurs in cases of duodenal ulcer and also that hyperchlorhydria does occur without the presence of duodenal ulcer. This is a point that should be kept before us. We may have hyperchlorhydria with duodenal ulcer and we may have duodenal ulcer without hyperchlorhydria, and without any suffering whatever. What we should guard against is expecting to have a case of duodenal ulcer simply because there is present a hyperchlorhydria with characteristic symptoms. I hope, too that Dr. Jones will take time in closing the discussion to make clear to us just what he means by hyperchlorhydria as related to hunger pain, does hunger pain mean simply being hungry?

Dr. Allen A. Jones, Buffalo, N. Y. There does occur great hunger among diabetics but that does not constitute hunger pain as described in my paper. What Dr. Bierring has said is correct, there is, in these cases, hyperesthesia, and a hyperacidity is the underlying condition. Among physicians themselves I find this to be a common symptom. In regard to the matter of duodenal ulcer and hyperacidity, or hyperchlorhydria the point that Moynihan has emphasized I have carefully watched and I do not wish for a moment to detract at all from the importance of the value of this symptom of duodenal ulcer. In my paper I said that the symptom might accompany duodenal ulcer. Duodenal ulcer is a bizarre affair in some cases. There often are no clear symptoms. In some cases hyperchlorhydria is a persistent manifestation. Sometimes hunger pain is uncontrollable, obstinately refractory, and a constantly recurring symptom, not yielding to any treatment then in the absence of other symptoms, one may regard the condition as one of duodenal ulcer. In these cases, of course, an exploratory operation is the proper procedure. I have seen cases in which a diagnosis of duodenal ulcer was made solely from this symptom, at operation, however, an appendix was removed which was found to be the only diseased structure, no evidences of ulcer being present. I have seen cases diagnosed as duodenal ulcer turn out to be cases of cholecystitis or cholelithiasis.

THE UNRELIABILITY OF UNIMPORTANT MEDICAMENTS *

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The quality of an article or commodity, in general, is directly dependent on demand and on competition. That is, if there be a large demand for an article and if a considerable number of firms put it on the market, then its quality is likely to be of a high order. Further, as a large demand will commonly bring about competition, "demand" is the chief factor which affects the purity of an article. As an illustration of the high quality of widely used commodities it is but necessary to mention the exceptional purity of ordinary table-salt and the fact that granulated sugar, almost without exception, barring a little moisture, approaches absolute purity. As further illustrations of high quality one may take flour, calico, pins and needles. It should further be stated that, although our Food and Drugs Act has had a beneficial influence even on these staple articles, their purity is in the main guaranteed by the large demand. A report on the purity of sugar by the Department of Agriculture[1] showed that of more than 500 samples purchased in the open market in different parts of the country not a single specimen was found which contained added matter, i. e., the department had not secured a single grossly adulterated specimen of sugar. Further, granulated sugar was in general found to be of exceptional purity. The list of every-day commodities which are to be had of a very high quality is a long one and it is very important to note that these articles of high grade are not unduly expensive because of this high quality.

The same conditions apply to drugs and thus we find drugs which are widely used and open to free competition, such as sodium bicarbonate, potassium iodid, quinin sulphate, morphin sulphate, chloroform and alcohol of a very acceptable degree of purity and of a relatively low price, that is, the high quality of these substances has been found practicable without any great increase in cost.

As illustrations of drugs which, in spite of apparent monopoly, are of a high degree of purity, such products as phenacetin, sulphonal and aspirin may be cited. But these products have, after all, enjoyed but nominal monopoly, even in this country of unfair patent privileges. The manufacturers of aspirin have found it expedient to sell a product whose purity would compare favorably with non-proprietary brands with which it had to compete in other countries. But even in this country, where aspirin is a monopoly, it still must compete with other salicylic acid compounds, that is, if aspirin of poor quality were sold, physicians would soon give preference to other related salicylic acid compounds. That medic-

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* Read in the Symposium on the Desirability of a More Restricted Materia Medica in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City, June, 1912.

[1] U. S. Dept. Agric., Div. Chem., Bull. No. 13, Foods and Food Adulterants, Part 6, Sugar, Molasses and Syrup, Confections, Honey and Beeswax, 1892.

inal substances which are not sold under competition are unreliable and inferior has been so thoroughly demonstrated by the reports of the Council on Pharmacy and Chemistry that it need not be argued here

The findings of the Council having forced the conclusion that all proprietary medicines, no matter how reliable the firm which makes any one of them, are well worthy of careful scrutiny, there was a tendency to assume, conversely, that all drugs and medicines not of a proprietary nature were as represented, at least so far as their identity and purity is concerned This assumption that non-proprietary medicines are to be relied on, because it is to no one's advantage to make false claims for them, has been found unsafe For, while none would sell these articles under grossly false claims or would adulterate them, because the profits to be derived from their sale is more than offset by the danger of detection, this small demand also operates in another way The conditions which make it unwise to sell such non-proprietary drugs dishonestly also appear to make it impracticable for the legitimate dealer to go to the pains of furnishing an article that is pure and reliable

The following is an outline of the findings of the Chemical Laboratory of the American Medical Association which shows that, in general, firms have not considered it expedient or worth while to take any considerable pains to insure that little-used drugs shall be of a high quality While some firms have shown commendable pride in improving the quality of their products when the findings of the laboratory were brought to their attention, this merely serves to emphasize the general uncertainty of little-used drugs

Calcium phenolsulphonate is sold by several manufacturers of chemicals Although it is a definite chemical substance, the examination of the commercial salt showed that the several brands differed considerably in composition and were unsatisfactory as to purity For example, one specimen which was claimed by its manufacturer, the Abbott Alkaloidal Company, to contain about 4 5 per cent of water of hydration, was found to contain about 15 per cent A second specimen which was sent by the same firm with a reiteration of the claim as to its water of hydration content (about 4 5 per cent) was found to contain only about 2 per cent The Merck, the Mallinckrodt Chemical Works, and the Powers-Weightman-Rosengarten brands all gave tests for uncombined phenol It is gratifying to report that the findings of the laboratory having been transmitted to the several firms interested, the Abbott Alkaloidal Company, and the Mallinckrodt Chemical Works now offer a product which complies with the standards adopted by the Council

Cicutine granules, each of which was claimed to contain 1/134 grain cicutine (coniin), were placed on the market by a manufacturer As coniin is a volatile alkaloid, it seemed absurd that any manufacturer would attempt to incorporate the free base in granules or tablets Examination revealed that the granules contained no free coniin but that the combined alkaloid was present in amounts equivalent to about one-half of the quantity of coniin claimed to have been present in the free state

Copper citrate as found on the market was examined and was shown to vary considerably in composition and purity The Merck brand contained a small amount of acetate while the others contained sulphate As a result of this examination, the Mallinckrodt Chemical Works has placed on the market a product free from sulphate and of satisfactory purity in other respects

Fluidextract of goldenseal, of U S Pharmacopeia quality, and otherwise may be had As dealers in hats seek to change style in order that both husband and wife must buy new head-covering, so manufacturers of medicines are constantly on the watch for something new When, therefore, it was found desirable and advantageous to replace certain drug tinctures by more concentrated and less alcoholic liquid preparations, manufacturers at once attempted to prepare fluidextracts from all drugs, regardless of the adaptability of such drugs to this treatment Not content with this the manufacturer was inclined to prepare two or more kinds of a fluidextract from the same drug, such fluidextracts being intended for a particular use, and thus we find in the price lists of many manufacturers besides the official fluidextract of golden seal, also a non-alcoholic fluidextract of golden seal and a 'colorless hydrastis" While among the fluidextracts are to be found some of the best and most carefully prepared drug preparations a long list of fluidextracts also contains many that are unreliable As an illustration of this an examination was made of 'colorless hydrastis" and "non-alcoholic fluidextract" of hydrastis as found on the market It was found that, although 'colorless hydrastis" preparations were generally listed with fluidextracts, they were not fluidextracts at all but weak solutions of salts of hydrastin in a menstruum of glycerin and water, evidently intended as a substitute for a widely used nostrum As to the non-alcoholic fluidextract it was found that out of ten firms' products but one approached the requirements for the official fluidextract of hydrastis[2]

Keratin is one of the many unofficial drugs entering National Formulary preparations As a member of the Committee on Standards for Unofficial Drugs and Chemical Products of the American Pharmaceutical Association, I was requested to formulate a standard for keratin, necessary because the Formulary contained directions for preparing the solution of keratin for use in coating pills As the value of such a coating is dependent on the resistance of keratin to the digestive fluids of the stomach, an academic description of keratin was made to contain a provision requiring keratin to be practically insoluble in hydrochloric acid-pepsin solution While the description was submitted to a considerable number of pharmaceutic manufacturers and dealers in drugs, no criticism of the proposed test was received One firm, Lehn and Fink, in particular, went to considerable pains to examine the description submitted but finally advised that it appeared to be quite satisfactory Nevertheless the specimen purchased from this firm was found to be almost completely (98 73 per cent) soluble in hydrochloric acid-pepsin solution It furnishes an excellent illustration as to the unreliability of claims made for products by those who are commercially interested in them In this case it is not supposed that the statement was deliberate Instead, the matter was not deemed of sufficient importance to warrant the precautions which would have been taken if large contracts for a well-known substance, say quinin sulphate, had been involved

Magnesium peroxid is one of a number of metallic peroxids offered as a substitute for hydrogen peroxid From the claims made physicians have imagined that these metallic peroxids were as definite in composition and as permanent as the definite chemical formula ordinarily assigned to these peroxids would lead one to imagine But [illegible] for instance the formula MgO is commonly assigned to magnesium peroxid, the Laboratory's examination showed the several commercial brands to contain but from 12 17 per cent to 25 18 per cent of real magnesium peroxid[3]

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[2] [illegible] July 4

Quinin tannate is official in most foreign pharmacopeias, in some of which methods for preparation are given and in which the official product in all cases is required to contain not less than 30 per cent of anhydrous quinin alkaloid The methods prescribed by these pharmacopeias, however, were found, in the Association's laboratory, to yield products which did not contain the stated amount of alkaloid Four commercial brands of quinin tannate were examined Three of these were found to be of fairly good quality The other (Merck brand) contained about 9 per cent of uncombined alkaloid and, consequently, was bitter and unfit for use

Aromatic digestive tablets are listed by a number of pharmaceutical houses Among other ingredients the tablets were claimed to contain hydrochloric acid While it is possible to prepare tablets containing small quantities of hydrochloric acid loosely combined with protein or weak bases (not sufficient to be of appreciable remedial value), the determinations of the acid content of the tablets showed that only one-half of the brands were true to label The product sold by Parke, Davis & Co, and that sold by Truax, Greene & Co, contained no hydrochloric acid either free or in protein combination, although the labels in each case declared the substance to be present The Sharp and Dohme product contained only the merest traces of hydrochloric acid

Bismuth, opium and phenol tablets are marketed by several firms with definite statements as to the quantities of their ingredients, of which phenol is the most important Various brands were tested for phenol and the quantities present indicated a wide variation from the claimed content Two years after these results were published, specimens of the same brands were investigated, and it was found that no appreciable improvement in the tablets had been made Still later, a third series was examined and the tablets found to be, in most cases, no nearer to claim than before The results found for these phenol tablets as well as those reported for the compound digestive tablets are, without doubt, characteristic of a considerable number of ready-made tablets As in the case of fluidextracts, the general utility of tablets having been recognized by the manufacturer, attempts were made to put out in tablet form all the remedies under the sun As many of the remedies do not readily lend themselves to the tablet form and as their small sale does not make a high quality profitable to the manufacturer, the market is supplied with material whose quality depends on chance

Zinc permanganate as found on the market was found to vary considerably The examination showed that some of the brands had decomposed, yielding relatively large amounts of insoluble matter and therefore showing a diminished permanganate content While the best specimens contained as high as 97 per cent of the theoretical amount, others contained but about 73 per cent In some cases a decided difference was found between the permanganate content of purchased specimens and the content of those submitted by the manufacturers If this variation in the quality of zinc permanganate be compared with the general high quality of even commercial potassium permanganate, the unreliability of little-used substances will be appreciated

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[3] The Journal A M A Dec 24 1910 p 2248

DESIRABILITY OF A MORE RESTRICTED MATERIA MEDICA FROM THE STANDPOINT OF THE PHARMACIST *

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The point of view of the pharmacist is the point of view of the composite who seeks, finds, identifies, collects, preserves, prepares, standardizes and dispenses remedial agents And let it be understood and accepted that this tremendous and powerful composite would not be led to seek and prepare this great mass of material if there were no market for it Do not be misled to believe that the market grows less and less profitable The contrary is most positively proved by cold, commercial figures, carefully collected, at considerable expense, by our progressive "Uncle Samuel" Therapeutic nihilism has had about as much effect on the misuse of drugs as political nihilism has had on the misuse of governmental power Rationalism is the better remedy for both evils

Wherever there is a market, there will be market-men, and the market will invariably afford just that class and quality of goods that is demanded The competent, composite pharmacist is the market-man for your drug supply, and I sincerely hope that one of the principal objects of this symposium and of all other such discussions is the bringing about of such reforms as will make it possible for the pharmacist creditably to meet the requirements his important vocation entails

I trust that, because of the comparatively few years left me wherein I may labor effectively with you and because of the smaller interest that is now mine I may be allowed, without the semblance of presumption, to impress on the medical profession that it needs this "market-man" to whom I have just referred, no matter whether his other name is pharmacist or something else Neither should the respect paid him be based on what he has been or, maybe, what he is, it should accord with the requirements he must meet and the abilities necessary to meet those requirements If this respect is vouchsafed him and the recognition such respect should win for him is forthcoming I believe medicine will have a much abler and more helpful ally in the effort now making for a more restricted and, consequently, a more scientific materia medica in which the pharmacist is, undoubtedly, greatly interested

But, both conscientious physician and conscientious pharmacist are more sincerely interested in a truer and better materia medica than they are in the mere restriction of the list of agents to be used It is the betterment they are seeking and the restriction is but a means to the end, at this time, rational and reasonable restriction is imperative and is the veritable key to the situation, as it effects broader pharmacy

A division of labor and specialization has helped pharmacy in its accomplishments as specialization has helped in other scientific fields But this is not enough to further and insure better and more constant pharmaceutic work, specialization, even to inconvenience, will fail if there is to be no limit to the demands, especially, in scope We have just reached the dawn of serious pharmaceutic research, remarkable possibilities are appearing that are most promising It is possible for one with a clear and extended vision, running over forty years of pharmaceutic practice, to estimate more exactly how very much larger is the amount of knowledge one must now have, respecting each individual article, than was formerly required. The intelligent pharmacist is forcefully impressed with his greater responsibility, largely because he is now informed as to the cause and effects of the multitude of changes that occur, due to factors that, not long ago, were entirely unknown, or, if known, were ignored.

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* Read in the Symposium on the Desirability of a More Restricted Materia Medica in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty Third Annual Session, held at Atlantic City, June 1912

I am sensible of the difficulty of citing fit illustrations to an audience like this, some would appreciate examples of bacterial invasion, others light induction or ionic saturation. It will, however, be more consistent to call attention to personal observations of the want of knowledge of so comparatively a simple salt as sodium nitrite, which rather recently has become quite popular. Sodium nitrite is frequently prescribed in combination and because of a want of sufficient knowledge of it by both prescriber and compounder, it rarely gets to the patient without decomposition. Acetyl-salicylic acid and sodium nitrite is a favorite combination.

Medical men and pharmacists have fallen into very bad habits, habits that naturally follow enforced, restricted or superficial knowledge of the agents they are using. There are *too many* drugs to be studied properly, or, if the physician or pharmacist were fitted or equipped for to-day, to-morrow would bring such a multitude of "new and non-official remedies" that one must, of necessity, forget the "old and official" ones. The 958 of the Pharmacopeia, added to the 589 of the National Formulary, would be easy for the pharmacist if it were not for the eight or ten thousand additional varieties. But it is the "lean and hungry apothecary" who must know the names and something about seventeen thousand remedies and appliances that are in his shop and used in the healing art that should have your sympathy.

Want of control is the pharmacist's sad plight and this is more pronounced in the smaller establishments. Want of control in purchase, in preparation, in preservation — how is it possible? Present methods and practices are not so bad for the large concerns and combinations, they make these possible and are helpful to them. Present methods and practices make of the smaller pharmacist a mere distributor with no incentive to do the better things or to become equipped for a proper control of his stock and a close and helpful assistant to the clinician. In despair, he wails, "What's the use?" and is carried on helplessly in the flood — the veritable flood of an unrestrained and unrestricted materia medica.

A restricted materia medica is most desirable from the point of view of the pharmacist, because an unrestricted materia medica means an untaught, unlearned and uncertain materia medica, more than all this and worse than all this, lack of knowledge and reckless and meaningless use of the materia medica destroy respect for it, and for the users, and this want of respect is, unquestionably, the most detrimental influence imaginable against pharmaceutic excellence. Naturally inactive drugs, undefined and non standardized drugs destructive and strangely modifying combinations, non-established and greatly varying doses, all following and resulting from an embarrassing profusion of agents, engender an utterly reckless disregard of all the finer touches that should make pharmaceutic technic a most helpful element in medical practice and an honor to its votaries.

THE DESIRABILITY OF A MORE RESTRICTED MATERIA MEDICA FROM THE POINT OF VIEW OF MEDICAL INSTRUCTION *

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NEW YORK

The desirability of a more restricted materia medica, from the point of view of medical instruction, is conceded by every teacher of the subject. No part of the medical curriculum has been subject to more criticism than the teaching of materia medica; the statement is frequently made both by the general practitioner and by members of examining boards that the average medical student is not sufficiently instructed in the science and art of therapeutics, and is especially weak in his knowledge of drugs and their incompatibility and behavior in combinations and in his ability to write prescriptions. The present medical curriculum is by far too extended so that it is practically impossible for the students to give sufficient time and attention to many fundamental subjects, because many others of minor importance have been introduced into it.

In order to determine to what extent the licensing examinations are influencing the teaching of materia medica, I have made a study of the questions that have been asked by state boards in recent years. This shows as follows:

The total number of questions reviewed were 2,109, which were asked on 510 drugs. One hundred and twelve questions were asked on thirty-one comprehensive topics, such as anodynes, anthelmintics, antipyretics, carminatives, cathartics, cholagogues, counter-irritants, deodorants, depilatories, escharotics, ecbolics, galactagogues, parasiticides, refrigerants, sialagogues, styptics, etc.

Taking as a working basis the schedule of materia medica in the report of the Subcommittee on Pharmacology, Toxicology and Therapeutics on Group A, which contained the important items to be studied thoroughly, 1,244 questions were asked on 103 drugs; on Group B, containing relatively unimportant drugs to which but brief mention was to be made, 485 questions were asked on ninety-five members, and 568 questions were asked on 281 drugs not included in these lists, most of which were of doubtful value. In many examinations the patented name of the drug was used in the questions.

From this examination, it is evident that, while a large percentage of the questions fall well within the list of drugs with which every student should be familiar, still a large number of questions are asked concerning drugs that are of questionable or of little therapeutic value. Many of these drugs have merely a "local vogue" but are included in the Pharmacopeia, which must be the official standard for the druggist, and are therefore considered suitable topics for licensing examinations. The importance that has been given to passing the licensing examinations, as a method of judging the standard of medical schools and the instruction in these schools, has necessarily caused the teaching to be more or less determined by the questions that are asked. This has caused undue emphasis to be laid on the mere materia medica part of the subject, and the students have had a smattering of information concerning many drugs, rather than a thorough training in those that are of the greatest therapeutic value. The effect of the students' attention being called to minor matters is that a great deal of time is wasted and the students lose the sense of proportion and become careless prescribers and observers of therapeutic effects Much of the knowledge that they have obtained in the medical school is of little practical use to them, because they memorize these drugs merely for examination purposes at the expense of definite training in the more important drugs

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* Read in the Symposium on the Desirability of a More Restricted Materia Medica in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session held at At[illegible] 1912.

It is unfortunate that untrained state board examiners should in this way influence the character of medical instruction In New York a new departure has been made by the appointment on the examining board of men who are teachers and authorities in their respective lines, and who have as well a clear insight into the questions which bring out a practical knowledge of the subject

In review of the criticisms that have been made of the teaching of materia medica, it is evident that many of the critics have not appreciated what is the function of the medical curriculum It is not to turn out skilled pharmacists, but men well grounded in the principles of pharmacology and able to apply these principles to the correction of the pathologic physiology of their patients It is therefore evident that the major portion of the course should be devoted to the thorough teaching of pharmacology, from both the laboratory and the therapeutic side To what extent materia medica should be taught is still a matter of discussion Medical botany and plant chemistry, at one time considered so important, are now of too little importance to be more than referred to in the course The same applies to descriptive pharmacy and the recognition of crude drugs If the number of drugs taught were sufficiently restricted, then it would become possible for the student to familiarize himself with the composition and physical characters, with the appearance, odor and taste, with the solubilities miscibilities and incompatibilities, and with the methods of administration and dosage of those which are commonly prescribed in practice It is not possible or necessary that the student should know all the preparations of even the more important drugs

There is both a science and an art in therapeutics The science of therapeutics should be taught in the medical school and form the basis for therapeutic application The art of therapeutics is a life-long study and comes only with experience The medical curriculum cannot turn out a finished subscriber The effect on the student who studies a large number of useless drugs is that, after graduating, he finds that they are of doubtful value and he immediately begins to look for those of more definite effect His imperfect training and careless observation cause him to turn to the newer drugs and to accept at their face value the statement of their manufacturers He barely gets his diploma when his attention is called to these drugs, or rather old drugs with new names, and he is led to believe that they are superior to the standard forms

The work of the student is increased largely by the want of correlation between materia medica, pharmacology and therapeutics The present method of arranging the text-books in materia medica and pharmacology is defective Those that are arranged alphabetically dissociate the drugs from their pharmacologic and therapeutic relations When the drugs are arranged from the pharmacologic or chemical standpoint, an unnatural classification is adopted, so that the student, at the beginning of his course in therapeutics, has presented to him a new classification based on therapeutic action This is confusing and entails an extra amount of work With a more restricted materia medica, a greater degree of efficiency can be demanded of the medical graduate, the instruction would be more definite, and he would also appreciate the fact that while not all of the drugs that are used in the treatment of diseases have been considered, those that are most important and have stood the test of time and experience have been brought to his attention

That a recent graduate is not a skilled pharmacist—that he has but slight art in prescribing—is conceded, but the recommendation that the teaching of materia medica should be more extended, and that chemistry, toxicology, pharmaceutic laboratory work and prescription-combining should occupy the major time of the course is unwarranted

40 West Seventy Second Street

THE DRUGS WE NEED[*]

OLIVER T OSBORNE, M D, A M
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We are fortunately, now, in the midst of an age of careful analysis and investigation of all treatments of disease, and especially of drug treatments We have passed through the era of absolute faith in drugs and combinations of drugs and mystical mixtures, we have passed through the era inaugurated by some of our best clinicians who were enthusiastic pathologists but therapeutic nihilists, and who spread the belief that drugs had no value, and we have come to the era of pharmacologic research and the knowledge derived from such investigations, which show that many drugs are potent and as such have valuable therapeutic uses

We have not yet eliminated mystery from medical practice, and still have a belief (unless we very carefully eliminate it) in a multiple mixture, although it may not be a mysterious mixture—we may know its contents It is so easy to believe when we are told that a drug in this particular combination has a particularly pleasant and efficient activity, or that this particular kind of a drug or preparation will not cause the disturbance that the well-known and well-tried basic drug causes

A thorough knowledge of the pharmacologic activities of some drugs, and an equal knowledge of the pharmacologic uselessness of other drugs are now necessary in the preparation of the medical student Having such knowledge, he will not make the mistakes which have long been made in the use of drugs It is being attempted by the state examining boards and by teaching institutions to limit the materia medica questions at state examinations to drugs that have positive value Such questions cannot be made too strong or too difficult, as such knowledge shown by the applicant to practice medicine is the greatest possible protection to the public against the misuse of drugs, and would soon cure the use of multiple mixtures, and the use of mixtures, the ingredients of which are not known In other words, instruction in, and examination on, useful drugs only will be a cure for the mistake of using nostrums, proprietaries, or even absurd and useless pharmacopeial preparations

What drugs shall be used, and how? The only way to discuss the subject is to classify drugs under the objects at which they are aimed It is advisable to classify drugs, not chemically or by some particular pharmacologic activity, but according to their therapeutic use. In other words, when we wish to meet an indication, what drug shall we use?

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[*] Read in the Symposium on the Desirability of a More Restricted Materia Medica in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty Third Annual Session held at Atlantic City, June, 1912.

I do not think it longer profitable, although I have, as is known, done my share of it, to urge the use of many Pharmacopeial and National Formulary mixtures. There is no question that these books furnish formulas, and each druggist can well prepare such formulas, to satisfy the desires of every physician, and thus many times prevent the necessity of specifying some particular proprietary mixture. My desire is to go one step farther, and state that we need these mixtures, whether Pharmacopeial, National Formulary, or proprietary, very rarely. I do not say that such mixtures have no value, but I do say that the active drug of the mixture can generally be given in a very simple manner and the results obtained be perfectly satisfactory, and the treatment be much more scientific.

I will not discuss the long, ever-varying list of drugs used as antiseptics and dressings, nor those used as parasiticides and escharotics, nor those used for various conditions of the skin, but will take up for consideration the drugs that are to be administered internally. In the discussion which follows I take it for granted that we always desire the best drug to meet the indication, and never desire a second and third-best drug; also, that we want the best preparation of that drug, and would not often desire a second-best preparation. In other words, we need no second- and third-rate drugs, and no third- and fourth-rate preparations. It is immediately seen that I have eliminated about three-fourths of the Pharmacopeia from our discussion.

The drugs that we need to diminish secretions, viz., astringents, are: alum for local use, rarely as a mouth-wash or gargle, never internally; bismuth subcarbonate or subgallate (subnitrate may cause, in rare instances, poisoning); silver nitrate internally only intermittently for an ulcer of the stomach or for some chronic inflammation of the stomach, and there is no other use for silver internally. Copper seems to have no positive use internally, and the only valuable salt is the sulphate as an emetic or as a local astringent. Zinc sulphate is the only zinc preparation we need, and should be used as an emetic or locally. There is absolutely no use for zinc in any form whatever internally. Tannic acid is suitable for local use and some of the newer combinations of tannic acid for internal action; rarely, perhaps, gallic acid for action after absorption.

Of drugs to increase the appetite, i. e., stomachics, if we cut out the useless bitters of the Pharmacopeia and their preparations and the large number of proprietary mixtures said to be reconstructive tissue-builders and appetizers, we have eliminated nearly one-third of the proprietaries that are brought to us, and that eliminates one third of the National Formulary substitutes. In my opinion we need none of these. If it is desired to give a bitter alcoholic cocktail before a meal, the compound tincture of gentian of the Pharmacopeia is efficient. The compound tincture of cinchona, carrying with it a little more medicinal activity, is another similar cocktail preparation. These drugs furnish all the bitter that is necessary to start an appetite. Very much bitter has been found to inhibit gastric digestion rather than to promote it.

One drop of the tincture of nux vomica in a wine-glass of water, taken before a meal or during a meal, will answer all the bitter purposes of any preparation offered as an appetizer.

Now as for iron, let me first state my belief that there is no organic iron that will do as much good as a simple inorganic iron; also, that 0.20 gm. (3 grains) of an iron salt will present to the patient, who is not undergoing red blood-corpuscle deterioration in his system, more iron than he can metabolize during twenty-four hours. Therefore, large doses of iron are not needed. The main point of the organic irons, ordered at great expense and furnishing enormous profit for pharmaceutical houses, is that they furnish less iron than the physician has been accustomed to order of an inorganic salt. The patient who could not take the inorganic salt does take such an organic preparation without unpleasant symptoms. If the dose of the inorganic salt is reduced to 0.03 gm. (½ grain), three times a day, it will be exceedingly rare to cause any symptoms that are noticeable or unpleasant.

While each individual physician has a pet iron salt which he prefers to use, still, there is no real chemical or physiologic reason why a certain few are not all that we need for internal use. These few are the reduced iron, the Blaud pill, saccharated iron oxid (*Eisenzucker*) and the tincture of the iron chlorid. Except the last these are but little astringent and are pleasant to take, and any one of them can do everything that any iron can do in the system. The strongest iron we can administer seems to be the tincture of the iron chlorid. It is never necessary to give enormous doses, and one drop of the tincture of iron, either in the syrup of citric acid and water or in freshly made lemonade, is of course not noticeable, and yet will give all the iron that is required for physiologic purposes. Five drops of the tincture of iron in fresh lemonade every six hours, even for a condition like diphtheria, is entirely sufficient, and even a child will rarely notice that he is taking anything disagreeable. The sugar of iron tablet is almost a confection, the child enjoys it. We can cut out of the Pharmacopeia, therefore, as far as our needs go, about thirty iron salts and preparations.

As to digestants, physiologists tell us that pepsin is rarely needed in the stomach, and that the starch digestion is generally sufficient. Therefore pepsin and diastase are not needed. The physiologic chemists tell us that pancreatin is probably rendered inactive in the stomach. Certainly any starch digestant and pancreatin will act in the stomach only until free hydrochloric acid or a considerable amount of acid peptones are present, and this will occur anywhere from one to one and one half hours after food has been taken. They tell us that proper chewing of the food, to mix the starchy food well with the saliva, is all the starch digestant that is needed. Dilute hydrochloric acid often is needed, and this is generally efficient. Pancreatin then is of value only as a predigester of food before it is taken. And again we have cut out a considerable number of Pharmacopeial preparations and a large number of proprietary preparations.

While cod-liver oil is, perhaps, one of the most easily digestible of oils, it is nevertheless so likely to cause indigestion that its value has been greatly overestimated. Butter and cream are generally sufficient, with perhaps olive oil added in some instances, to increase nutrition. And again we rule out the multiple proprietary emulsions of cod liver oil.

The large number of glycerophosphate elixirs is probably not needed, neither are the lecithins, and there is practically no difference between a lecithin and a glycerophosphate. We do not need [illegible] elixir that contains alcohol or a lot [illegible] rin [illegible] sodium glycerophosphate does not seem to be of value. Calcium glycerophosphate, ordered in dry capsule or in tasteless powder, will do all of the work that the various wonderful elixirs will do. It may supply a need to the body, while calcium is a sedative to the nervous system. This is again a touch of simplicity.

I am convinced that nothing will decrease the perspiration like atropin; therefore I see no reason, except for the local use of alcohol, for using any other drug.

To increase the amount of urine, nothing is better than water; next caffein in some form, digitalis, buchu, broom and perhaps squill.

To render the urine alkaline there is nothing better than potassium citrate; and there is no wonderful action in the A B C mixture. Potassium citrate is the pleasantest, and, in a proper dose, efficient. We do not need the others.

As antiseptics for the genito-urinary tract, hexamethylenamin, methylene-blue, salol and salicylic acid are efficient.

As a stimulant to the genito-urinary tract, the oil of santal is as satisfactory as anything yet discovered, and is as little likely to disturb the digestion, and we can do away, in my opinion, with the nasty copaiba, the unnecessary cubebs and the Pharmacopeial and proprietary legion of genito-urinary stimulants.

Outside of iron and thyroid there are no efficient emmenagogues. For the pains of menstruation, after studying all the various Pharmacopeial, National Formulary and proprietary mixtures, the valuable drug seems to be alcohol. I believe that almost every preparation offered for that purpose contains alcohol. It is generally ordered given in hot water; and the dose is sufficient to make any young girl or woman feel better, or at least be indifferent to her condition. In other words, the dilating effect of the alcohol, its slight anesthetic properties, and the mental indifference which it causes, I believe, give the keynote to the satisfactory action of all of our many and multitudinous dysmenorrhea mixtures. Therefore, let the patient have gin or alcohol, and color it, or fool her as desirable.

As for drugs used to act on the respiratory tract, and first, those used to increase the secretion of mucous membranes, i. e., expectorants proper, when we name ammonium chlorid given in small doses, ipecac and iodids, we have covered all that are of any great value. Ammonium carbonate is too irritant, and is not needed. If we need a cardiac stimulant of the ammonia type, the aromatic spirits of ammonia is better. If we wish to decrease the secretion of the mucous membranes of the upper air-passages, ammonium chlorid in fair-sized doses, atropin, terpin hydrate and opium or any of its alkaloids, will be efficient. In my opinion all of the old so-called expectorants served up in miserable, bad-tasting syrups are not needed, are useless and are bad for the stomach. Nothing can be done in the expectorant line that cannot be done by the above-named drugs. Ammonium chlorid is best administered in a sour syrup, or given in lemonade.

To relax spasm in the respiratory tract, as in asthma, atropin, bromids, chloral, gelsemium perhaps, morphin, nitroglycerin or other nitrite, and scopolamin (hyoscin) are most efficient. Any combination that is of value for asthma generally contains one or more of these drugs. I cannot find any action of belladonna, stramonium, or hyoscyamus that is not that of either atropin or scopolamin; therefore with these two alkaloids, it seems to me we can do away with all of the other preparations of these three closely allied drugs. There are no activities of these drugs that are not represented by one or both of the above alkaloids.

The greatest bugaboo in medicine is in the proper use of drugs that act on the circulation. These are probably more misused than most any other potent drugs.

It is well to subdivide the drugs that act on the circulation into those that are stimulants and have immediate activity, and those that are tonic and have prolonged activity. The stimulants are camphor, ammonia, strychnin and caffein. Caffein and strychnin have prolonged activities, and really are stimulo-tonics. Caffein in any form acts positively on the circulatory and nervous systems. Strychnin is very much overused. Camphor is one of the best cardiac stimulants that we possess. Alcohol may be of great value in relaxing the peripheral circulation and the abdominal circulation and thus relieving a laboring heart.

As a cardiac tonic, nothing equals digitalis; and its second is strophanthin, given intramuscularly or hypodermatically. If the dose of digitalis is properly regulated, and the preparation is a good one, there is no need for, as there is no real physiologic value in, any of the other so-called cardiac tonics. They may all be eliminated from the Pharmacopeia.

To contract the blood-vessels, suprarenal active principle, pituitary active principle, ergot, atropin, and the drugs already mentioned may be used in proper manner and at proper times.

To dilate the blood-vessels, nitrites in some form, iodids, thyroid, aconite if needed, and chloral occasionally represent the drugs of value.

The so-called antispasmodics are really cerebral stimulants and exciters. The reason they are antidotes to spasmodic conditions, such as hysteria, is that they probably stimulate the brain to better control. Camphor is perhaps the best. The advantage derived from an asafetida or a valerian is probably either from the alcohol contained in many of their preparations, or else is psychic, from the disagreeableness of the odor. They are really of no positive value, and many other treatments, or no treatment at all, as Christian Science, would be of as much value.

To depress the central nervous system, so-called depressomotors, we have any of the coal-tar products, bromids and chloral and opium, if we must. As to coal-tar products, either for analgesic properties or for antipyretic properties, of all the large list presented we still have no better than acetanilid, antipyrin and acetphenetidinum (phenacetin). Acetanilid, on account of the dose being small (and the dose should always be small), is the most valuable. It is a very useful drug when ordered and used by the physician for a particular condition. It is the most misused drug, on account of entering into so many nostrums.

Among drugs to produce sleep — hypnotics — there is still none better than chloral; all hypnotics must be graded from this old drug. Chloralamid may be a little improvement on it in a way, but the dose must be larger and its action is often not so efficient. Bromids are valuable when they are needed. Paraldehyd in certain cases may be used, and the hypodermatic injection of scopolamin has a powerful activity which we would not like to lose. The idiosyncrasy of some patients to scopolamin and atropin, however, must never be forgotten.

Of the newer hypnotics, veronal-sodium seems to be the best and safest. The dose of veronal is smaller than the dose of sulphonal, trional or other synthetics, and, therefore, it causes less irritation of the kidneys during its excretion. The sodium combination seems to be less depressant than the veronal itself, and it seems the best of these preparations to use. If this is the best, then we need none of the second- and third-rate drugs of this class in the Pharmacopeia.

There seems to be no reason for the many bromids. The sodium bromid is the best, potassium bromid is distinctly more disagreeable, strontium bromid is expensive, and the reason of its lack of disagreeable stomach-effects is that it is absorbed less rapidly, and zinc bromid is unnecessary. *This again simplifies the Pharmacopeia.*

Of all the iodids the sodium iodid seems the best. Potassium is always depressant, sodium is rarely so. Therefore, other things being equal, where the drug must be given for a considerable length of time, the sodium salt is the one which should be preferred. All the various new iodids (iodids without their sting) put on the market only mean a smaller dose of iodid, that is all. If the dose administered of the straight sodium iodid is diminished to what the patient would absorb from one of the proprietary preparations, the unpleasant symptoms will be found not to be caused. The sodium iodid should be given either in water or camphor water, or a saturated solution may be given in milk or water.

Of the colchicum preparations we need only the best liquid which is probably the wine of the root, and the alkaloid, colchicin. We certainly do not need the number of preparations of it in the Pharmacopeia.

Of the very many preparations of mercury in the Pharmacopeia at least half could be abolished. I will not designate which half or which third I would deem most valuable, because the differences in opinion are so very great I would simply start an unprofitable discussion. But there is no difference in mercurial action. It is only a question of dose and which preparations, and a few, as soon as one learned how to use them, would have the same action as have the many.

Of all the salicylic acid preparations offered, it is simply a question of regulation of the dose. If any of the proprietaries furnish salicylic acid without its sting, this means that the substance is absorbed very slowly, and the dose given is very much smaller. If the dose of the sodium salicylate is made smaller, the absence of unpleasant symptoms would be the same. If, on the other hand, in rheumatism it is necessary to push a salicylic acid preparation, these preparations that are said to not cause symptoms will cause symptoms. It is only a question of dose.

I am not a drug nihilist. I believe thoroughly in the activity of drugs and thoroughly in their value, but I deplore the profession being fooled by promoters of so called new drugs and new synthetics, when, if the reliable Pharmacopeial drug is properly used, it is perfectly satisfactory.

I do not for one moment wish it understood that I *do not believe in looking into and investigating every* new single drug (not mixture) that is offered. Every little while we find something that is of great value such as hexamethylenamin, phenolphthalein, veronal, salvarsan, perhaps the new synthetic suprarenal principle, but I wish to stimulate a criticism, an honest criticism, of every drug or preparation that is presented. If it is a mixture, we should analyze the formula and draw a line through every ingredient that is of no value, and see what is left. It is many times the very drug of the Pharmacopeia that we have all been long using. The rest are veils to befog our discovery that the only active drug of the mixture is such a simple common, every-day affair.

252 York Street.

THE WORK OF THE COMMITTEE ON USEFUL REMEDIES *

M. I. WILBERT

Secretary of the Committee
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The Council on Pharmacy and Chemistry of the American Medical Association has been repeatedly though erroneously criticized for being destructive rather than constructive in its work and not a few medical practitioners have pointed out the difficulty of consistently following the efforts that are being made to improve on the conditions now existing in relation to the use of drugs as aids in the prevention or the treatment of disease.

The difficulties that would be encountered by a physician in active practice in any attempt to differentiate between useful and useless articles will suggest themselves to any one who will take the time to look over one or more of the current price-lists of drugs and proprietary medicines. The many thousands of meaningless names found in such a list are disconcerting to even the best-informed medical practitioner and to one who can give only a limited amount of time and thought to the subject they must be quite as confusing and meaningless as the names of so-called patent medicines are to the ordinary layman, since this is so it need not surprise us that the physician absorbs much of his incentive to use a given drug or preparation in much the same way that the layman does—from the say so of others in advertisements or the so called standard works on the subject of *materia medica.*

The present-day status of the use of medicines has been designated as consisting of series of vicious circles. Patent medicines are used by the laity because they are advertised by manufacturers and they are advertised by manufacturers because they are used by the laity. The closely related proprietary medicines are prescribed by physicians because they are advertised in medical journals, and they are advertised in medical journals because this leads to their being prescribed by physicians. Official remedies are official because they are endorsed by text-books and are endorsed by text-books because they are official.

Up to the present time little or no attempt has been made to classify systematically the more useful or more promising medicaments. Even the teachers of materia medica in medical schools are helpless in this respect because of the fact that the several state medical examining and licensing boards are likely to ask questions on all sorts and kinds of medicaments and teachers of materia medica of necessity feel that they must teach at least something about all of the different official articles *and many of the more widely advertised non official* preparations.

In the past the Council has endeavored to exercise its influence with the revisers of the Pharmacopeia and the National Formulary and has striven to induce the compilers of these books to restrict their scope to articles of established value. These efforts have however been futile, largely because of the fact that both the U. S. P. and N. F. are accepted by law as the standards for the articles which they contain, and it is felt that physicians who use obsolete or inert drugs have an equal right to standard remedies as physicians who confine themselves to articles of known and recognized value

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* Read in the Symposium on the Desirability of a More Restricted Materia Medica in the Section on Pharmacology and Therapeutics of the [illegible]ical Association at the Sixty-Third Annual S[illegible]

With a view of arousing the interest of medical practitioners in the subject the Council more than a year ago appointed a committee to compile an authoritative list of the more important medicaments and then to submit this list as a basis for the teaching of materia medica in medical schools and for the examinations on materia medica subjects by state examining and licensing boards, so as to foster the routine and more extended use of these articles by practicing physicians generally

The possible restriction of materia medica teaching to articles of acknowledged value has been discussed on various occasions and several attempts have been made to outline a reliable materia medica list One of the more recent attempts in this connection was made by the Council on Medical Education of the American Medical Association several years ago This list, somewhat augmented, was selected by the Committee on Useful Remedies as the basis for its work, and the resulting list then sent to the teachers of pharmacology and therapeutics in medical schools and colleges, the secretaries of state medical examining and licensing boards, members of state boards whose addresses were furnished by the secretary and to a number of general practitioners who had replied to previous inquiries On the basis of the replies obtained, a second list was compiled and discussed in THE JOURNAL for Dec 9, 1911 with the request that members of the American Medical Association who might be interested send in their opinions regarding it The list thus secured was reviewed by the members of the council present at the annual meeting in February, 1912, and is now ready to be offered tentatively in the form of a manual for ready reference, with the request that medical practitioners generally make such suggestions for additions and deletions as would tend to make the final list fully representative of the best in the materia medica of American medicine

Eventually, it is expected to publish a critical review of the actions and uses of the several drugs included in the list, so as to present in as complete a form as practicable the present status of our knowledge regarding the drugs and preparations that are discussed in the book

The preparation of such a book will necessarily consume considerable time and the proposed tentative publication of a manual is for the twofold purpose of keeping the subject before American medical men and of securing their cooperation in the final compilation and publication of the more comprehensive work

Twenty Fifth and E Streets N W

ABSTRACT OF DISCUSSION

ON PAPERS OF MESSRS PUCKNER AND HYNSON, AND DRS LEFEVRE, OSBORNE AND WILBERT

Dr F E Stewart Philadelphia Dr Osborne for a long time has been eliminating from the Pharmacopeia Fortunately he has still left a small number of drugs to be used by the revision committee I am in favor of much that he has said It would be a great advantage to those of us who are teaching materia medica if we could limit the Pharmacopeia to really useful drugs but unfortunately, there is such a difference of opinion among therapeutists that it would be difficult to accomplish

The next question is that of introducing new materia medica products by advertising All will admit that the demand created by advertising has proved largely fictitious and ephemeral It is only the secondary demand that really comes from merit For the introduction of the new products by advertising, an enormous outlay is required. It is necessary to obtain higher prices to pay for this advertising To protect the investment of capital, monopoly is considered necessary by some manufacturing houses This is usually obtained by patenting materia medica products In protecting advertised products from injury to sales sometimes resulting from the original research of scientific men, certain manufacturers deem it necessary to threaten such investigators with lawsuits, if the evidence published is of an unfavorable nature If members of the profession cannot impartially discuss new materia medica products without danger of lawsuit, how can we expect progress in materia medica science and in the arts of pharmacy and drug therapeutics?

In my paper read before the American Medical Editors' Association I suggested a plan I have been advocating for the past thirty years, namely, the establishment of a strong central board of control, in which the manufacturing houses, the medical and pharmaceutical journals, and the professions of medicine and pharmacy could be represented Some of the functions of the proposed board would be the censorship of materia medica advertising and of the literature and labels of manufacturing houses, also the investigation of the therapeutic claims relating to new materia medica products by collective investigation, using the working bulletin system for that purpose The plan differs from that of the Council on Pharmacy and Chemistry in that it is cooperative rather than *judicial Its work would be supplementary to that of* the Council and in harmony with it I do not believe we fully realize the enormous amount of good accomplished by the *Council The Council ought to have the backing of every* manufacturing house in the country By attacking fraud in pharmacy, it is driving out unfair competition, and making it possible for honest manufacturers and their experts to obtain an honest living

Dr W D Calvin, Fort Wayne, Ind Much of the time spent in studying most of the drugs that we find in our materia medica to day is wasted

Sometime ago, I read a paper before our society on the misuse or abuse of drugs and I secured the consensus of opinion of about seventy members of our society concerning the drugs they thought were most misused We arrived at the following conclusions First, many drugs are overused, second, many drugs are misused, third, many drugs should more frequently give place to other and better therapeutic agents I said, 'If I ask you, as members of this society, to write down ten or twelve drugs with which you could conduct 90 or 95 per cent of your drug therapy, the result would probably be that you would discover that you would not require that number" If I were to ask the same question to day, you would write two or three rapidly and go more and more slowly as you approached the tenth, if, perchance, you ever reached it I am free to say that 95 per cent of my drug therapy is done with fewer than ten drugs and I believe that this is the experience of every man here to day I do not believe less in drug therapy than I did when I left college I have much less confidence in most of the drugs found in the materia medica than I had at that time, but to counterbalance that I have much more confidence in the few I use than I had at that time Is not that your experience? Why should we all go through this constant weeding out that we must individually do after we leave college?

Shortly after leaving college I passed the State Board of Minnesota, considered a hard board at that time Three of the questions in materia medica were concerning drugs that I have never used from that time to this The examination simply tested us out to see if we had gone through the pages Was that practical? No Many of our state boards are still asking these questions Among the state boards of the United States appointed through political pull many a member is not able to answer the questions he asks That is not true, of course, of the boards that are appointed at the suggestion of our state medical societies and not entirely true of the others I would not make a sweeping statement of that kind

Dr Hobart A Hare, Philadelphia The statement was made in the report of the committee that certain drugs are placed in the text books because they were found in the Pharmacopeia and that they were placed in the Pharmacopeia because they are in the text books. This is not accurate. The drugs which are official are the drugs which pharmacists and physicians and the laity all over the country call for with sufficient frequency and constancy to make it necessary that both the physician and layman should be protected and should be sure of getting a real drug or a definite compound of a drug. The drugs are not put into the Pharmacopeia because they are in the text books, but it is true that they are put into the text books because they are in the Pharmacopeia, although I do not know of any text book which includes all the drugs that are in the Pharmacopeia because the practicing physician and the man writing a text book find many drugs in the Pharmacopeia which they cannot endorse and which they believe to be largely inert. I am in accord with the statement that the list of drugs to be taught to students is ridiculously large. The average physician will get along better if he uses ten or twelve drugs, but that some variations of these drugs are unnecessary I do not believe. In medicine one preparation suits the needs of a patient better than another. The one may not be different from the other in its physiologic action when it is absorbed, but it is different in appearance or taste or different in the ability with which it disturbs or agrees with the stomach. There is danger of antagonizing the experience of men in general practice by being too dogmatic in regard to these points.

Half of the number of hours that I devote to lectures could be more advantageously employed if there were no state boards because, like Dr. Calvin, I am forced to teach facts which will not be used in practice merely because they will be used in state board examinations. A few years ago a member of a board asked what the dose of santonin was for a babe of 8 months. I have never yet seen a babe of 8 months with roundworms. I would not have known what to answer myself. When I wrote and protested the examiner replied that he did not believe that my criticism needed further consideration. Dr. Councilman told me that he believed that the best form of examination—a practical one—was that used in Massachusetts. This means that the man who can prove to the board that he has practical knowledge will be licensed, whereas most of our boards ask questions, correct answers to which do not prove that the applicant is a competent physician to practice.

Dr. S. Solis Cohen, Philadelphia: Potassium citrate may be the only diuretic salt needed at Yale, but some of us have formed the habit of using potassium acetate occasionally. Why should the American Medical Association say, even to Philadelphia barbarians, "You must not use 'tweedledum', you must accept the dictate of Olympus and employ 'tweedledee'?" This question is not so simple as one may deem in looking at it from the purely personal point of view. I have no objection to Yale's restricting itself to twenty drugs or to Oxford's restricting itself to four or to Harvard's restricting itself to none, but if the patient happens to be under my care and my judgment tells me that I shall use a remedy which is outside of the twenty or the four that are sacrosanct, or even the nine hundred and forty that are officialized, what is my duty under the circumstances? To bow to some prohibitive restriction imposed in ignorance of the existence of that patient and of the conditions that he presents, perhaps in ignorance of the existence or of the influence of the remedy I propose to use? Maybe so—but I do not see in that light. My patient is entitled to my knowledge unhampered by orthodox or even official, ignorance. For example, I have had an interesting discussion lately with regard to aspidosperma. This potent drug does not find place in the Pharmacopeia of to-day; it probably will not find place in the Pharmacopeia of next year or the year after. Aspidosperma, therefore, omitted from the Pharmacopeia to please restrictionists who know nothing whatever about it from personal observation must not be prescribed by me on account of such omission, although I should not know how to treat certain cases of asthma without it. I know how asthma is treated without it, of course, but I should not know how I could give my patients the benefit of the knowledge and skill they are entitled to. There is no objection to any physician restricting himself to the tools that he knows how to use, but there is every objection to his attempting to restrict some other physician who has other and perhaps better tools and methods. The Pharmacopeia should admit every drug that is known to be of advantage in the treatment of the sick, no matter how seldom it is prescribed and no matter how many other drugs there may be which have similar influence. On the other hand, it is true that we can simplify the teaching of materia medica and improve the practice of therapeutics by confining our work in the schools to a certain number of typical drugs, provided, however, that these drugs are to be taught as types and not as exclusives.

Dr. M. Clayton Thrush, Philadelphia: The important part that the state medical boards of this country play in the teaching of pharmacology and therapeutics in our medical schools has not been sufficiently emphasized. The young man who is about to enter a medical school, of course, wishes to enter the best. He selects one of the colleges which has most of its graduates pass the state board, and the way we decide their respective rank is by the report we find once a year in THE JOURNAL of the American Medical Association. How do we classify medical colleges in their reputation? They are beautifully classified according to the number of men who pass the state boards successfully. The school with the fewest failures is considered the best school. Considering state boards as the best judges of the reliability of medical schools, we must consider what a powerful factor the state board is. A few years ago in Pennsylvania the question was asked: "How much tincture of pilocarpus is equivalent to 1/20 of a grain of pilocarpin hydrochlorid?" The students could not answer the question and brought it to me. I told them that the question could not be answered because the amount of pilocarpin varies in different specimens of the drug, and again we have no standard strength tincture official. How could you make the comparison to determine how much tincture? That is the kind of questions our state boards ask. The whole solution of this problem is to have men on our state boards who will ask sensible questions. Then our teachers of therapeutics, as Dr. Hare has said, will not have to teach one dose for the state board examination and another dose for actual practice.

Dr. L. F. Kebler, Washington, D. C.: Professor Puckner spoke of restricting the number of drugs and stated that widely used drugs are usually of high quality and of greater purity. My experience bears out that view in so far as chemicals are concerned, but such is not the case with crude plant drugs. Ergot, for example, imported into the United States during the past year has been very bad, yet large quantities are used. The same thing holds true in regard to buchu leaves so far as foreign material is concerned. Another point that ought to be brought out is this: even though the chemicals are of good quality the preparations containing them frequently vary materially. A worse feature is that they are often not true to claims that appear on the label. For example, you will find a tablet labeled as containing 1/60 of a grain of strychnin; investigation often shows that it does not contain that quantity or contains much more. The same is true of nitroglycerin tablets. Professor Hynson spoke of 17,000 drugs they have kept watch of. We need to keep watch of a much larger number, probably 25,000 proprietary remedies and probably the same number of ethical mixtures. A pill or tablet made by one manufacturer may be analyzed by a certain method, but when the analyst applies that same method to a tablet of another make and tries to analyze it he is likely to experience trouble. So it is necessary, in order to arrive at the active constituents in some of these tablets, to work out a method for almost every manufacturer's tablet. One argument against the restriction of the number of these drugs is that the Pharmacopeia is the law and the standard. With the present con [illegible] I wish the [illegible] Pharmacopeia, [illegible] we are virtually restricted to that standard We have no discretion in going further A case we had in New York the other day illustrates this An importer was allowed to bring in so called senna siftings, but after getting it in the bale was renamed and shipped into interstate commerce as 'broken senna" The court held, under the definition of the law, that the commodity was not considered adulterated because the word 'broken" was introduced If we had not been restricted to the Pharmacopeia we would have been absolutely free to fix a standard, but with the Pharmacopeia as it stands we are apparently helpless Any standard of the Pharmacopeia can be negatived as the situation now stands by introducing some qualifying word such as broken" Another example is debased male fern, shipped into interstate commerce as 'male fern, natural" It is claimed not to be the male fern of the Pharmacopeia, but something else If the Pharmacopeia did not exist, if it was not under the law, we would not have these difficulties

Dr. Oliver T Osborne, New Haven, Conn You will all realize why Dr Cohen and I cannot get together on the Pharmacopeia In other sections the need for accepting the best present standards is recognized, but here advice as to what drugs have positive therapeutic value is called an attempt to take away the personal liberty of the individual I say we should go in for therapeutics right up to date Now, we can talk until we are tired of the standardization of the Pharmacopeia and its object The Pharmacopeia is an advertisement and a recommendation of the drugs it names, and says to the individual, this is the best we can offer you go and practice it Therefore, I say that there is an object in limiting our discussions to drugs that are of value and insisting that they are the ones we should use, and the Pharmacopeia should contain only such useful drugs On the other hand, if we are going to standardize different colored preparations for psychic effects, for the sake of the effect on patients what will the end be? If bricks and sand are essentials to putting together a house with a spade, and some builders prefer a modified spade called a trowel, is it necessary to standardize the trowels? Let him get it where he can get that particular trowel, not standardize any one trowel and say that is the trowel Just before I left New Haven, in an examination of our junior class on advanced pharmacology and beginning therapeutics, I asked the question Name the ten drugs that have the most value in your opinion and then state why Also, name the best preparations and doses of these individual drugs" Twenty drugs would cover all these men decided on Now that is what we are looking for in the advance of the teaching of materia medica, and the medical examining boards have got to come to it It is only a question of a few years more and schools and examining boards will recognize only active drugs, and why should not we all now aim to have the Pharmacopeia an up to-date proposition? One word more in regard to substances presented to the Council on Pharmacy and Chemistry Many times the preparation offered does the work claimed for it But we find that the active substance is in a mixture We cannot pick out one of these therapeutic combinations and say 'this is what does the work," when any other combination of the active drug would do as well

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The Mental Factor in Functional Diseases.—An intimate relation exists between the functions of the central nervous system on the one hand and the sensory, motor and visceral functions on the other This vital relation, though unobtrusive in the normal individual, stands out clear and distinct in the whole domain of functional diseases Clinical and laboratory studies have brought to light the important fact that all those cases that go under the description of nervous disturbances of a functional character, such as hysteria, hystero epilepsy, the so called larval epilepsy psychic epilepsy, neurasthenia, psychasthenia, and all the forms of the neuroses and phobias in regard to external and internal stimulations, are all to be ultimately referred to mental disturbances, whether conscious or subconscious —Sidis in *Arch Diagnosis*

THE TREATMENT OF LEUKEMIA AND PSEUDOLEUKEMIA WITH X-RAYS *

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Little has been added to our knowledge of the etiology or pathology of leukemia and Hodgkin's disease during the last few years Some details regarding the diagnosis have been established and in the case of Hodgkin's disease the clinical differentiation from certain conditions presenting superficial resemblances has been made possible So far as the ultimate causes and nature of these diseases are concerned, we remain in the same ignorance as formerly The tendency among writers has, it is true, been more and more commonly manifested in the direction of regarding both as close kindred of the new growths, a view which we have held for a long time and on which in a large measure our methods of using the *x*-rays in the treatment are based In our former discussion of the subject[1] we called attention to the fact that so far as leukemia is concerned all recent investigations tended to prove that the bone-marrow is the primary seat of the morbid processes, no matter whether the disease is of the so called myelogenous or of the lymphatic variety The further contributions of the years intervening since our publications still tend to maintain this proposition In the case of Hodgkin's disease the evidence is otherwise Here the initial lesions are of a different sort and localization, the lymphatic glands being the place of origin and remaining the place of chief involvement

One other feature in the pathology of these diseases that requires brief mention here is the influence of the disease of the bone-marrow on the formation of red blood-corpuscles The clinical study of the blood in cases of leukemia progressing unfavorably always shows advancing anemia, which is evident from the decreasing number of red corpuscles, their morphologic variation from the normal and in the somewhat less trustworthy diminution of hemoglobin as determined by the ordinary methods So far as the hemoglobin is concerned, one must remember that increased leukocyte-counts affect the estimations very decidedly This progressive anemia of advancing leukemia is manifestly hypoplastic All the evidence of the studies of the blood points to increasing imperfection in blood-making and there are few of the signs of hemolysis As far as prognosis is concerned we must look to the study of the red cells and of the hemoglobin for the best guides to a determination of the probable course of the case Enormous numbers of leukocytes may be present for considerable periods without immediate serious significance, but a rapidly falling erythrocytic count is always ominous On the other hand, reduction of the leukocyte-count alone does not constitute sufficient evidence of improvement This was plainly shown in some of the early *x*-ray treatments when applications to the spleen sometimes caused rapid reductions of the leukocyte-count without corresponding improvement in the patient — rather, indeed, with a reverse effect

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* Read in the Section on Practice of Medicine of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912

[1] Stengel A., and Pancoast H K. Treatment of Leukemia by the X Ray The Journal A. M A, April 25 1908, p 1317

A matter of considerable clinical interest is the tendency to spontaneous recessions occasionally seen in leukemia. It is more commonly recognized that such recessions frequently occur in pernicious anemia and that their occurrence must be reckoned with in estimating the probable effects of treatment. Similar recessions occur in leukemia and in Hodgkin's disease. Three distinct instances in leukemia have come under our observation. The most striking was one in which a woman who had presented marked and undoubted evidences of myelogenous leukemia lost all symptoms of this condition after removal to a near-by mountain resort. Practically no medical treatment was used — none which could ordinarily have caused such a result. In two other cases, one of which is still under our observation, there was speedy disappearance of all signs of the disease after brief, and, according to ordinary standards, inadequate *x*-ray treatment. In each case the examination of the blood during the remission by expert hematologists at first showed no evidence of the preexisting trouble and only after the history was furnished did they discover on prolonged search a few abnormal leukocytes of possible myelocytic type. In one of these cases a relapse, a second recession and a third relapse occurred under our observation. In the other there has been no relapse after nearly a year. Previous experience of our own and a study of the literature had convinced us that such remissions are probably not uncommon in the early stages of the disease, but we had had no opportunity of actually observing them.

LEUKEMIA

We have had opportunities to observe the effect of *x*-ray treatment on over forty cases of leukemia. The first two of these were treated throughout by the older method of directing the applications mainly or entirely to the enlarged spleen, before the adoption of our present technic. The results were the usual unsatisfactory and disappointing ones with which we are all familiar. In the other cases, the present technic, that of directing the radiation primarily to the bones, has been employed throughout, with a few exceptions. While most of the patients have been under our direct care during the entire period of treatment, in a few instances we have either started or have simply outlined the treatment and it has been continued or carried out altogether by others, and we have kept in touch with the patients subsequently as far as this has been possible.

While we are not prepared to present any exact statistical evidence to show the relative merits of the two methods, our experience with both has been so convincing as to leave no doubt as to the superiority of the results derived by the method now employed. It is gratifying to know that this method is shared by many others who have adopted this method in preference to the older one. In a few instances we have been able to compare the results of both in connection with the same cases in which splenic radiation was instituted with either little or no benefit or the patient made worse, but following the change to bone-radiation the decided improvement that soon became manifest was most gratifying.

So far we have been unable to prove that leukemia can be permanently cured by radiation, but we do know that the *x*-ray will do more toward prolonging life during a period of comparative comfort than any other therapeutic agent yet employed. The important advantages to be derived from directing the treatment primarily to the bones may be summarized as follows:

1. In general, the expectation of life is greater.

2. Patients as a rule regain health and strength more rapidly, owing in part, no doubt, to the avoidance of early toxemia, and the average patient is soon able to resume his or her occupation, even though the leukocyte-count remains high. This state of comparative health and comfort may be maintained for a variable period, but it usually continues up to a short time before death, when this ultimate termination does come. One patient who has been under our observation from the beginning, though not treated by us, has been in comparatively good general health and has been able to attend to his business for four years. This has been accomplished by keeping a close watch over the differential count and whenever there has been a decided change in the percentages one or more series of applications have been made by his physician over the entire body. Another patient who stopped treatment and returned home some time before we would have been willing to discontinue remained in relatively good health without any treatment for three and one-half years, when she was said to have died of pneumonia.

3. This method is certainly attended by fewer dangers from toxemia and *x*-ray dermatitis.

In order to derive the greatest possible benefit from the treatment it must be administered carefully and intelligently. The more careful we are in carrying out the technic thoroughly and systematically, and in adapting it to suit the special features of each individual case, the greater will be the benefit derived, in the long run, and the longer will the patient live.

The general technic that has been previously described in detail is still followed. Experience has proved that it has certain features which require special emphasis.

1. The applications should be made systematically to the bones of the entire body, with the exception of the head, the body being mapped out into definite areas for the purpose.

2. Exactness in dosage is always most important. It should be so regulated as to produce the necessary effect without inducing toxemia, if possible.

3. The frequency of the applications is equally as important. They should be made daily when possible, and prolonged periods of rest should not be permitted. Life has been shortened months or even years in many instances through disobedience of this injunction, or failure to insist on it.

4. Direct exposure of the spleen and other secondary enlargements should be carefully avoided during the earlier part of the treatment; this applies especially to the very large spleens of the myelogenous form of the disease. The first important reason for this is the avoidance of the undesirable toxemia that is likely to follow, especially in advanced toxic cases, and the second is the fact that the more rapid decrease in the leukocytosis that is likely to follow is apt to be misleading because it is not due to the effect of the radiation on the primary seat of the disease entirely. In many instances this will lead to a discontinuance of the treatment long before the greatest possible inhibitory effect on cell-proliferation has been induced. The spleen and other enlargements should receive a share of the applications by all means, but always at a later and safer period when the leukocytosis has diminished considerably and the general condition improved to such an extent that the additional waste products can be taken care of adequately and eliminated without any danger from toxemia. The spleen should not be treated at the expense of the bones, but should be [illegible] additional reason to receive its share of [illegible]

enormous spleens it is advisable to begin their radiation at the earliest period consistent with safety, because then reduction requires a long time Moreover, a large spleen is a source of much discomfort because of its size, weight and effect on other organs, and its presence is a source of occasional dangerous complications, such as perisplenitis or hemorrhage resulting either spontaneously or as a result of traumatism, as from a fall We recently had the experience of a sudden death in a patient who had been progressing most favorably until she fell and struck heavily over the splenic region The splenic tumor may remain as the last vestige of the disease, and require radiation for some time after the disappearance of all other manifestations

5 The duration of the treatment has an important bearing upon the prolongation of life Applications should not be discontinued or lessened in frequency until normal conditions prevail if this be possible By "normal conditions" is meant the disappearance of every manifestation of the disease, including abnormalities in the differential count

6 The leukocyte count may be an important clinical factor in showing the patient's condition, and is perhaps the most direct single index we have as to the effect of the treatment on the disease, but it is by no means so dependable in the latter application as it is generally regarded. In fact, it should not be relied on to any extent as a direct index, except at practically one stage of the treatment. If we are able to reach the point where the leukocyte-count has subsided to normal or nearly normal figures, the differential count becomes more and more important as the guide for continuing or stopping the applications

In those cases which exhibit an unusual susceptibility to radiation or arsenic, the rapid disappearance of the abnormal blood-picture suggests or requires a cessation of treatment long before any definite or lasting effect can be exerted, and such cases soon relapse, and do not do well ultimately, as a rule The usual slow reduction in the leukocytosis that is characteristic of the bone-treatment is to be regarded as an advantage for the reason that it prevents a too early cessation of the applications, and experience has proved that only very prolonged treatment has any decided influence over the disease If the count remains stationary for some time at a comparatively high figure after it has dropped to a certain extent, as is frequently the case, moderate doses of arsenic will usually lend the necessary assistance to the *x*-ray in lowering the count further Unless indicated in this way, or by a decided anemia that does not improve, the use of arsenic during radiation does no good, and only causes confusion

Blood-examinations should be made frequently throughout the treatment, and especially leukocyte-counts As a rule the leukocytosis is apt to increase to a certain extent for a while after beginning radiation of the bones, but this should never be regarded seriously unless accompanied by increased toxemia, or unless the general condition becomes worse A normal leukocyte count is never, in itself, an indication to stop, but treatment should be continued as long as myelocytes are present, or the differential count remains distinctly abnormal If we are so fortunate as to bring about a restoration to normal percentages, treatment may be discontinued, but a differential count should be made subsequently at least once a month, and, on the return of distinctly abnormal percentages, radiation should be resumed immediately, without waiting for the appearance of any other manifestations of a relapse This is one of the secrets of prolonging life in the most favorable cases Arsenic should be avoided particularly at such times, as it tends to delay the appearance of the first signs of a relapse and the needed radiation

7 Arsenic is frequently a valuable adjunct to radiation, as already explained, but it is too often misused If radiation is to be regarded as the essential therapeutic agent, and there are no special indications for giving arsenic, it should be used with careful reservation, as it is likely to interfere seriously with the proper and adequate administration of the *x*-ray treatment It should never be given in large doses during radiation If for any reason the patient is obliged to discontinue the *x*-ray for any considerable period of time, arsenic should, of course, take its place

8 Particular attention should be paid to the care of the skin from the very beginning, as the ultimate result or the duration of life, at least, may be largely dependent on the tolerance of the integument A severe *x*-ray dermatitis always demands a cessation of treatment over a portion, or all, of the body, and this may be of sufficient duration to shorten the life of the patient a year or more

Adequate *x*-ray filters should always be employed, and the applications made through the clothing as an additional precaution The quality of the output of the *x*-ray tube should also be carefully watched A dermatitis is far more likely to appear during the summer months Whenever the skin begins to show a reaction, alcohol bathing should be advised, and talcum or stearate of zinc dusting-powder should be freely used, especially where skin surfaces are in contact or the clothing produces friction It is well to give additional protection to the hands, which are not covered by clothing, and to protect the hair of the head and the external genitalia of males by lead screens

Long-continued radiation will ultimately cause an atrophy of the glands of the skin It has been contended that the resulting loss of the function of sweat-secretion is harmful If undoubted proof of this should exist, it might be possible to protect the sweat-glands in some portions of the body where they are most numerous or best developed, as those of the axillæ, for example We have never found any occasion for doing this, however

9 Radiation is contra-indicated in practically all cases of acute leukemia, as it will only hasten death The same may be said of many chronic cases during acute stages with associated severe toxemias, although considerable benefit may be derived from the treatment of some of these cases When we do undertake to treat them, the greatest care is required in handling them The dosage should be much reduced at the start, and the applications should be limited to the extremities until there are some definite signs of improvement If the condition appears to become distinctly aggravated by the treatment, this should be discontinued, but if there seems to be any improvement, or even if the case appears to be made a trifle worse, radiation should be continued, and the dosage gradually increased with care, but kept within safe limits To accomplish any good, this early toxic period must be passed over as soon as possible, and without intermissions unless absolutely necessary In these grave cases it is a question of life or death, and many such patients have been allowed to die too soon for fear of doing harm before any harm has been done We have carried several patients safely over such periods, even when others have hesitated or declined to treat them, and some of these patients are now alive and attending to their daily occupations

10 Of all the patients who have responded in any way favorably to the treatment, it has been our experience that those of lymphatic type give somewhat better ultimate results than those of myelogenous type

PSEUDOLEUKEMIA

In Hodgkin's disease the radiation must, of course, be directed to the localized enlargements The more experience one has with the treatment of this disease the more he is inclined to regard it, from the therapeutic standpoint at least, as closely analogous to lymphosarcoma The majority of cases certainly resemble the latter closely in the manner in which they react

From the *x*-ray therapeutic point of view we might recognize three distinct groups of cases To one group belongs a small percentage in which the enlargements are localized to one region, respond rather promptly to treatment, and either do not recur, or if they do, usually because of insufficient radiation, the recurrence is limited to the same area, without metastasis, and readily responds again One case of this kind was treated four years ago, receiving less than twenty applications, and there has been no sign of a recurrence since

The second group includes the majority of cases In them the enlargements may be more or less localized, or general, they respond to treatment slowly, and not only recur invariably, but also give rise to metastases in nearby or even distant structures These patients ultimately die as a rule but we can do much toward prolonging life, sometimes for years, by keeping up a constant fight and attacking the metastases as they appear We have now under treatment two patients with late spinal involvement which in one had appeared after all other demonstrable enlargements had subsided some time ago—Another patient with localized cervical enlargements died following rapid hepatic metastasis, which was not recognized until the autopsy

In such cases with general enlargements, we can practically never expect a complete disappearance of those within the chest, abdomen or pelvis With such patients we must pursue a more or less palliative course, and keep up the treatment indefinitely It has been our custom to go as far as the skin will permit with vigorous treatment, or to keep it up until no further enlargements can be demonstrated though they no doubt still exist, and then to continue the applications at less frequent intervals indefinitely One each week may be all that is required to keep the patient alive, and practically well, for years One of our patients has been kept comparatively well for five years in this way, although the enlargements become manifest in some one area or another if the applications are discontinued for any length of time

To the third group belong a small percentage of cases which do not seem to respond to radiation, and some of which may be rendered so toxic as to necessitate its discontinuance

A large percentage of cases of Hodgkin's disease will exhibit toxic phenomena a few hours after each of the earlier applications, and this is just as apt to occur in a case with a small localized group of glands of moderate size as in one with extremely large glands or wide spread enlargements The patient may complain only of a headache, but may have a slight chill and moderate rise of temperature These phenomena follow only the first few treatments as a rule, but they are manifest so frequently that we have made it a rule to begin the treatment of all cases with diminished dosage, increasing it to a maximum gradually

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ABSTRACT OF DISCUSSION

Dr James Tyson Philadelphia I can add one instance to the report of Dr Stengel and Dr Pancoast that of a young farmer who appeared to respond promptly to the application of the *x* ray to the bone shafts After a time however, he relapsed and a return to the use of the *x* ray was not followed by a prompt response until the administration *of arsenic was associated when he again improved decidedly*, and at last reports was in excellent shape

Dr Walter L. Bierring Des Moines Iowa In view of the etiologic significance of bone marrow changes to leukemia, I am sure we all recognize the logical application of the *x* rays While it cannot be considered a curative measure, it evidently has a favorable effect on the comfort of the individual and in prolonging life In connection with the treatment of leukemia an interesting observation was made during the past year in connection with a case of chronic myelocytic leukemia which had been observed during the past three and one half years In January 1912 immediately after a period when the leukocytosis was specially marked, averaging 350 000 leukocytes per cubic millimeter and the other symptoms of leukemia being specially prominent the patient developed a large carbuncle in the back This led to a general septicemia the predominating organism being the *Staphylococcus pyogenes aureus* The carbuncle was excised in the surgical service of Dr Fay and the patient did not fully recover from this infection before the end of six weeks During this period the blood picture underwent a complete change, in that the leukocytes were reduced to 18,000 and the myelocytes from 45 to 3 per cent while the polymorphonuclear leukocytes predominated to the extent of from 90 to 95 per cent in the differential count

The patient passed from observation immediately after his recovery from the infection and did not return to the hospital *until two months later* when the leukemic blood picture was again prominent The leukemic blood picture was replaced by that peculiar to a pyogenic infection In view of the previous experience the patient was treated with staphylococcus vaccine prepared from a laboratory culture and during the following two months a distinct change was noted in the blood picture in that the leukocytes were reduced and the other leukemic features became less marked but the effect was not nearly so striking as that produced by the infection in January This antagonism between a pyogenic infection and leukemic processes has been observed before and is rather suggestive of a close relationship between leukemic and sarcomatous processes, because the antagonism between pyogenic infection and sarcoma has been a frequent observation particularly in the older literature The patient referred to has also undergone distinct remissions of improvement under *x* ray treatment but the change was not so marked as that produced by the pyogenic infection

Dr Elliott P Joslin Boston I should like to ask if Dr Stengel could give any idea regarding the duration of life of those so treated and also the duration of life in a series of cases of leukemia untreated with the *x* ray

Dr. Adoniram Judson Quimby, New York I have treated at least twenty of these cases more than half clinical patients at the Post Graduate Hospital I have not used arsenic in treating any of them It has not been possible to follow the clinical cases so closely as would be desirable I can recall only one or two which have *terminated fatally* and these patients were practically moribund when first seen In all the otherss I have noted improvement although some are still in bad condition On the other hand the cases I have in private practice I have been able to follow and have been much gratified by the results obtained especially after treatment directed to the long bones which were the only parts treated in several cases The blood count has shown considerable variation, but has been quite generally satisfactory Several patients who have been under observation about two years have now practically a normal picture and are continuing well

Dr. Alfred Stengel, Philadelphia [illegible] Dr Joslin's question, I would [illegible] treatment in the management of leukemia has been too recent to justify a statement as to whether the final results will be better than those of medical treatment It is, of course, well known that patients with leukemia frequently survive for several years, sometimes without any treatment whatever It will require, therefore, several years longer before one can definitely say how lasting a result may be achieved by *x* rays Perhaps I can give some answer, though less definite than Dr Joslin would like During twelve or fifteen years prior to the use of this treatment, I saw many cases of blood disease including leukemia, and in all that time I can recall but one case in which under the use of arsenic the blood picture returned to something approximating the normal On the other hand, in the few years during which we have been employing the *x* rays several such cases have occurred and in a number of others I can state that the general condition of health was materially improved as I had never seen any patients improved by arsenic or other remedies Dr Pancoast has stated, and I entirely agree with him that we have no ground for believing that the use of *x* rays will cure leukemia, but on the other hand I have many reasons for thinking that it will delay the fatal termination of the disease

The older literature contains quite a number of references to cases of leukemia apparently terminating favorably on the supervention of some infection Among others, I recall certain milder infectious diseases of childhood and others in which more serious diseases like tuberculosis occurred On account of this antagonism I treated several cases of leukemia by vaccination with cow pox virus, hoping that this might prove effective The number of cases so treated was small but none of them gave the least sign of encouragement In several cases in our present series accidental infections occurred and in one of them a huge abscess developed under the muscles of the thigh following a hemorrhage into those tissues The patient subsequently recovered but the infectious lesion had no effect whatever on the progress of the leukemia

One feature in certain of the cases that have been under our treatment is that though the blood picture altered little if at all, the patient s strength and his capacity for work returned and aside from the blood examination one would have been compelled to regard the result as most satisfactory Another point regarding this treatment that needs consideration is that the use of *x* rays especially over the spleen acts in a hemolytic way and the red cell count is reduced When this reaches a certain point, the treatment should be moderated or discontinued and an effort should be made toward restoring the quality of the blood

ROENTGEN TREATMENT OF NON-MALIGNANT LESIONS *

RUSSELL H BOGGS, M D

PITTSBURGH

Realizing that Roentgen treatment in non-malignant lesions is too broad a subject to treat in detail in such a paper as this, I shall invite consideration of only a few of the more important phases of the subject It may be taken for granted, at the outset, that Roentgen therapy has vindicated itself as an essential adjunct in the treatment of superficial non-malignant lesions, the part of the symposium I have been requested to take up, but there is still considerable difference of opinion as to the exact range of usefulness Some dermatologists undervalue this method because they have seen failures, as well as harm done by injudicious treatment, and also because they are unable to apply this method properly or even to select the cases best suited to this treatment On the other hand, many roentgenologists who have observed brilliant results are overenthusiastic and advise Roentgen treatment in many cases which could be treated effectively by more simple methods, and cases in which nothing but failures could be expected Therefore these enthusiastics treat a greater percentage of cases than is justifiable

There is need of a definite classification not only by exact diagnosis, but also by the stage of pathologic changes It can then readily be understood that the controversy as to Roentgen treatment is due to a deficiency in technic among many dermatologists, and a deficiency in diagnostic and pathologic knowledge among many roentgenologists Incorrect treatment is as potent for harm as the correct is for good Justice demands that the Roentgen rays be applied with care and skill, not only in cases in which it is the best method of treatment but also in cases in which it is an essential adjunct to other methods The successful therapeutist must be master of his technic, whether it be roentgenology or medication It is well known that the reaction varies from a simple transient erythema to a deep-seated inflammation with sloughing, thus producing all the stages of a burn

I shall omit the different degrees of Roentgen dermatitis, as they are well known to all at the present time That the same dosage of *x*-ray effects tissues differently is also generally understood It has been explained often how frequently glands undergo a fibrous degeneration without injuring the surrounding tissues, and it would be only a waste of time to review this part of the subject

It has been repeatedly demonstrated that pathologic cells are less resistant to the rays than the normal, thus, diseased cells may be destroyed while at the same time the surrounding healthy tissue may be little affected or may even be stimulated The therapeutic indications for the Roentgen rays are the removal of hair, the diminution of the functional activity or atrophy of sebaceous glands, the destruction of microorganisms in living tissue, the alteration of metabolism, either general or local, the destruction of pathologic formations, and the analgesic action on pruritus and in malignant tumors These indications are based on pathologic and clinical findings, and in a general way should be of some assistance to those who have had even no experience in determining diseases in which the rays are applicable In some instances more than one action of the rays may be indicated and the application of the rays affords rather a wide field of usefulness

CLASSIFICATION OF CUTANEOUS LESIONS

It would simplify Roentgen therapy if the non-malignant superficial lesions could be classified into (1) cases in which the rays are the best single method of treatment, (2) cases in which the *x*-ray should be employed in conjunction with other methods, (3) cases in which the rays will cure the lesion, though not so well as other remedies, (4) cases in which the Roentgen rays are contra-indicated The pathology of the lesions, however, are so diversified in the same disease, that even such classification would necessarily be inaccurate

Possibly in no field of medicine has there been so much difficulty in determining a classification as in the cutaneous lesions The problem has been a favorite study of the dermatologist for more than a century, and at present there are over 300 classified diseases of more or less uncertain pathology The principles in Roentgen treatment differ in no respect from those which govern pharmaceutic remedies Recognition of the correct pathologic stage of the disease is just as essential as the diagnosis itself, in determining and influencing the treatment Cases in which Roentgen therapy is indicated do not run an acute course, as a rule, and are not self-limited and the patients will not recover in spite of bungling treatment. It is just as inexcusable, as well as inadvisable, to treat a premature alopecia with the *x*-ray, as it is advisable to treat ringworm of the scalp by this method In premature alopecia there is an early degenerative change and therefore only stimulating treatment is advisable, while in ringworm of the scalp there is a microorganism, and the object is to remove the hair without producing any degeneration Errors in such cases are fortunately becoming less and, with the proper therapeutic understanding, should entirely disappear In most cases in which this method is advocated only local measures are required The proper constitutional management in many diseases is, however, important It is necessary to build up and maintain the strength of the patient, as this has a potent influence in the permanency of cure To attain more than the average success in this line of therapy, the physician must have a good foundation of general medicine, as well as a special roentgenologic knowledge

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* Read in the Symposium on Roentgen Therapy in the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty Third Annual Session, held at Atlantic City June 1912

DISEASES THAT ARE BENEFITED BY ROENTGEN RAYS

Much benefit has been derived from *x*-ray therapy in a number of the inflammatory skin diseases, such as eczema, psoriasis, lichen planus, lupus erythematosus, etc, in all of which the skin is thickened and indurated as the result of a chronic inflammatory process The proper amount of radiation given at the proper intervals will often produce sufficient stimulation of the tissue to cause absorption of the inflammatory exudate Since the etiology and pathology of the various inflammatory diseases are different, the amount of treatment and even the length of time vary the same as other therapeutic agents It is in this class of cases, as a rule, that the roentgenologist depends entirely on the rays to effect a cure, whereas it may be advisable to use other adjuvants

I was called in consultation recently with a physician who had been applying the rays for a case of eczema in an elderly patient, the tissues were already of low vitality, and he had been giving the same amount of radiation that he had given in a case of epithelioma which he had treated successfully When treatment is applied over a large area of tissue which is of low vitality, for the purpose of stimulating the absorption of the inflammatory exudate, it must be mild in comparison with that necessary to produce destruction of tissue as in epithelioma Otherwise harm instead of benefit may be the result In many such cases the *x*-ray is inadvisable, inasmuch as stimulating medication will often readily effect a cure We should reserve this form of treatment for the recurrent and the very chronic cases One is occasionally greatly surprised at the results which can be accomplished in from five to ten treatments in cases of chronic eczema which have resisted all other treatment and have gone the rounds of the various physicians I have found the application of the *x* ray beneficial in many cases of chronic eczema of the hands Many observers have noted the fact that after a few applications of the Roentgen rays the discharge and itching ceased and the desquamation was arrested

Schamberg mentions the value of the *x*-ray in recurrent vesicular eczema of the hands and feet He states that in no other form of the disease is radiotherapy so uniformly successful and that it secures a greater permanence of cure than any other method In scaly eczemas of the palms and soles the results are less certain

The *x*-ray is a valuable accessory to the treatment of psoriasis Under moderate exposures at proper intervals, according to the amount of *x*-radiation psoriasis usually completely disappears The treatment should be given cautiously in order to avoid the production of a dermatitis, and extreme caution should be exercised if it is given over large surfaces The treatment is far more agreeable to the patient than any of the other forms of treatment and is often successful in rebellious and obstinate cases that had practically resisted all other methods of treatment It is generally conceded that there are fewer recurrences and that the intervals between attacks are prolonged Besides the recurrence is usually of a milder type which will nearly always yield to medication after the patches have once been made to disappear by the *x*-ray

Authorities have agreed that either the Roentgen rays or Finsen light constitutes the most efficient treatment we have for lupus vulgaris, but the routine application of the *x*-ray in the treatment of lupus erythematosus has been disappointing A study of the pathology will show why the rays have only a limited use in lupus erythematosus That the name suggests essential relationship to lupus vulgaris is unfortunate Except in distribution and in its broadest features it does not, as a rule, suggest lupus vulgaris and it is not a form of tuberculosis of the skin Lupus erythematosus is characterized by well defined reddish patches, covered with grayish scales adhering to the surface and tending to atrophy while lupus vulgaris is a tuberculous cellular new growth, consisting of papules nodules and flat infiltrations, usually terminating in ulceration and scarring In lupus erythematosus there are two distinct types of cases which require entirely different treatment The superficial type with red patches and dilated blood-vessels, should be treated with the milder remedies, including sedatives, whereas the interstitial, with infiltrated patches and horny crusts, can be successfully treated only by stimulating and even more heroic measures This is one of the reasons why it has been frequently stated that the *x*-ray in some cases aggravates the condition and causes spreading of the disease The cases most benefited by the *x*-ray are those in which the chronic infiltrated patches, with hypertrophy of the sebaceous glands, predominate Roentgen therapy should be employed with special care in lupus erythematosus Many authorities are impressed with the results of carbon dioxid in lupus erythematosus and believe that it is superior to any other method in which the more radical procedures are employed

There is universal testimony that excellent results from the Roentgen method of lupus vulgaris are just as marked as the Finsen method The scars are soft, white and flexible, not showing the usual keloid-like character of the scars following removal by other methods There are also fewer recurrences On account of the *x*-ray being more easily applied, at present it seems to have the preference over Finsen therapy

Roentgen therapy is not a satisfactory method for the permanent removal of hair It is necessary to produce a permanent atrophy of the hair follicles and in so doing there is danger of producing atrophy of the surrounding structure Results may be secured in a certain percentage of cases, but in my opinion the method should not be undertaken except in extreme conditions and with the full understanding [illegible] of the exposures are kept within the bounds of safety, improvement is altogether uncertain.

The x-ray as an epilating agent, as a rule, should be reserved for favus and ringworm of the scalp, in which we wish both to remove the hair and to destroy the microorganism. The excellent results of Sabouraud and others are well known and need no further explanation.

In private practice one only occasionally sees favus and tinea tonsurans, and in this country the majority of the work done has been in institutions. Excellent results in both sycosis vulgaris and tinea sycosis have been obtained. The amount of x-radiation here as in other lesions mentioned depends on the etiology and pathology of the disease in question. In tinea sycosis it is necessary to epilate the hairs completely in order to remove the organism in the tissue, while in sycosis vulgaris the patients usually recover long before the hairs fall out, and often many times before the slightest erythema is observed. One of the reasons for mentioning the difference in treatment between sycosis vulgaris and tinea sycosis is that one of the recent text-books of roentgenology which has the ground well covered in roentgenography, covers the subject of Roentgen therapy for sycosis in two lines and one-half. I suppose tinea sycosis is meant, but to any one just taking up Roentgen therapy it certainly would not be clear which form was under discussion. The physician who approaches the study of Roentgen therapy finds the literature full of just such puzzling problems.

In acne vulgaris, I consider that the x-ray is the most important single therapeutic measure we possess, but other measures should usually be combined with this form of treatment. The x-ray is applicable in all stubborn forms of acne vulgaris and the results are particularly marked in the most severe pustular cases. In acne rosacea we have a different pathologic condition from that of acne vulgaris. Radiation should be carried only to the point of decreasing the activity of the sebaceous glands, which causes absorption of a large amount of the hypertrophic growth of connective tissue. The destruction of the small vessels should be accomplished by other methods, such as electrolysis. In lesions of this type it is never advisable to push radiation to the point of destroying all the small vessels.

It is a fact that the common mistake in the treatment of acne is made by overdosage for a short period or underdosage too long continued. Either produces complete atrophy of the sebaceous glands while partial or temporary atrophy is all that is necessary to effect a cure. When permanent atrophy is produced acne will not recur, but such condition of the skin is worse than the disease itself.

Lately I have observed amazing results from a few applications of the rays in hyperhidrosis, and results can be accomplished in a few treatments without the production of any noticeable reaction in the skin.

The destruction of new growths by the rays has brought about considerable controversy which is still going on. Because the rays will destroy tissue of low resistance without destruction to the healthy stroma, some have gone to the extreme of applying this method injudiciously, whether it is for the removal of a simple benign wart or mole or for a large malignant tumor. This has brought much discredit to Roentgen therapy. The fact that a physician has an x-ray machine or that a wart or mole can be removed by a number of treatments does not justify the selection of this agent. This is what I have repeatedly seen done by many, when a single application of electrolysis, high-frequency spark or excision under a local anesthetic would have accomplished the same result.

The x-ray is indicated for multiple glandular tumors of any size, unless produced by an acute inflammatory process. It is to be particularly noted that the end-results in tuberculous adenitis are better than in any other form of the glandular growths. Glandular enlargements constitute a broad subject and will not be further discussed.

Before the employment of the Roentgen rays for the treatment of keloid, results were very unsatisfactory. Many have been able to convert large keloids into flat, flexible white scars by the application of the x-ray. Large hypertrophic scars can be treated with the same result. I have secured several good results in cases in which the keloid was large and somewhat resistant to the x-ray by having the growth excised and then giving a few additional radiations.

In conclusion, the distinctions drawn in this paper in which the x-ray is indicated and others in which it is contra-indicated, and still others in which the ideal treatment combines the x-ray and medication, it follows logically that the roentgenologist must be an expert dermatologist and vice versa. To my mind many unsuccessful results can be expected by roentgenologists applying the rays with little or no dermatologic knowledge or, on the other hand, by dermatologists using an agent about which they know little or absolutely nothing. It is my firm belief that there will be a specialty known under the combined name or title of roentgodermatology or dermatoroentgenology.

ABSTRACT OF DISCUSSION

Dr. Henry K. Pancoast, Philadelphia: Dr. Boggs' assertion that x-ray men should be dermatologists must be more valid if he so modified it as to imply that a roentgenologist should not treat skin diseases unless he is a dermatologist as well. Radiation is the only generally successful method of treating keloid. When used alone, the treatment must be long continued, but experience has shown that excision, when possible, and subsequent postoperative radiation, are just as efficient, and in much shorter time. The results in tuberculous adenitis make this one of the most satisfactory conditions to treat by radiation. A decided skin reaction is essential before sufficient radiation has been applied to exert the necessary degree of stimulation in healthy tissue or cells, and at the same time a destructive effect on those of lowered vitality, in connection with which absorption must be promoted. The destruction of the organism is accomplished indirectly through the reaction induced in the tissues. General systemic measures and the closing of avenues of infection are most essential as adjuncts to the treatment and in the prevention of recurrence. The treatment should be modified in accordance with three types of cases. In the first, with enlargements which formerly would have been regarded as having just reached an operable stage, radiation, if properly applied, should be the only local measure required in all instances. The second group includes cases with one or a few very large glands not yet undergoing perceptible caseation. Conservatively speaking most of these are primarily operative cases, but only the largest glands need be excised, the smaller ones being left to postoperative radiation, thus simplifying the operation and minimizing the scarring. The third group embraces cases which have passed beyond the stage of beginning caseation, and which are primarily operative. Here again, postoperative radiation will simplify the operation, and in addition, will promote healing of sinuses, and also yield far better cosmetic results by minimizing scar formation or reducing excessive scar tissue.

Dr. H. F. Pitcher, Haverhill, Mass.: Psoriasis is certainly incurable in most cases. I had a case when I first started in Roentgen treatment. The patient, a man, 55 years old, had

had psoriasis thirty years He had been treated by some of the best dermatologists in this country and Europe His body and head, except his face, were practically covered with scales, he was bald Every morning he swept up from out the sheets enough scales to fill a dustpan He was a widower and was to be married within the next six months and wished to have a clean skin It was the first case I had treated with the Roentgen rays The patient was recommended to me by a dermatologist of Boston, who had seen the treatment in Germany but had never used it himself and was much interested in the outcome I began to treat one section of the body at a time, giving ten or fifteen minute treatments but the patient was so impatient that he could not wait for so slow a process, but wanted one to treat the whole body at one time So I treated different sections for about ten minutes at a time and gave him hourly treatments twice a week The patches cleared up very rapidly and in about six weeks he was practically clear of the scales When I came back from my vacation at the end of a month he was nearly as bad as ever I omitted proteins from his diet and gave high colonic injections, I also gave him the *x* ray treatments three times a week In about three months he was practically well and has remained so for twelve years

Dr **Alfred** L Gray, Richmond, Va A surgeon on the staff of one of the largest hospitals in America was much surprised to hear me say that I had had good success in the treatment of tuberculous glands I began the treatment of tuberculous glands with much skepticism The patient, a young society girl, had a brother who had had a number of glands removed from his neck about twelve months before leaving a wound *that was slow to heal and an ugly scar* This young lady had a large tuberculous mass just in the submastoid region and in seventeen treatments she was apparently cured She never had a recurrence and I was as much surprised as the physician who sent her to me There is one thing it might be well to bear in mind Long standing cases of tuberculous glands require a series of treatments and often the scar tissue which has necessarily formed will require some time to be absorbed and disappear The consequence is that while the glands may be greatly reduced during treatment, they may not entirely disappear for six months or a year afterward If the gland is not suppurating I can probably make it go away but if it is I will make it break down more quickly so that it can be incised and drained The destructive effect of the *x* ray on the gland tissue that is already breaking down will cause a more complete and rapid disintegration On the other hand if it will break down slowly without suppuration the material can be gradually absorbed so that the gland will steadily and painlessly disappear I believe, after my experience in treating tuberculous glands, that there is perhaps no case in which a surgeon is justified in excising a non suppurating tuberculous gland if the *x* ray is available

Dr George E Pfahler, Philadelphia The Roentgen treatment of fibroid of the uterus, which comes under these benign tissue growths, has become such an established form of treatment connected with the leading gynecologic clinics in which the treatment is recommended favorably that we are bound to give it *some attention* I have treated twenty four patients and some of them are well five and six years after treatment In no line of treatment have my results been so uniformly good, so that I am really enthusiastic in the treatment The technic is that used in all deep seated work

Dr Sidney Lange Cincinnati The influence of the *x* ray on the thymus is not very well known Its influence is so pronounced and so positive that it seems to me almost a specific form of medication for enlargement of the thymus in very young children, or persistent thymus in older children The first application of *x* ray to an enlarged thymus was made in 1903 by Friedlander and Crane The child made a complete recovery and is now living and well Since that time but one other case (except my own series) has been recorded by Myers of Minneapolis in which this form of treatment was tried with good results Several years ago I was asked to make a series of experiments on young animals to prove this action I selected young rabbits since they have a relatively enlarged thymus and in a careful series of experiments, all of the experiments being carefully controlled I found that very few *x* ray exposures would cause atrophy of the thymus Since the thymus tissue is a very young tissue more or less embryonal in type and destined to disappear ultimately, the cells are not of the highly differentiated fixed type of the organism and are very susceptible to radiation I found that the thymus of a young rabbit could be made to disappear in a period of three weeks, without causing Roentgen alopecia of the anterior surface of the chest showing how susceptible the thymus tissue is to the *x* ray These experiments were preceded by several successful cases that we had treated Following the experiments I was fortunate enough to treat three or four more in all of which there was a positive improvement at once The microscope has backed up these experiments showing the influence of the *x* ray in a very remarkable way and by such a simple experiment anyone can satisfy himself of this action in a few weeks time The thymus cells begin to show granules the nuclei become fragmented disappear and the thymus cells diminish in number and overgrowth of connective tissue occurs Some of the rabbits were killed after ten or twelve exposures and just shriveled remains of the thymus were found, whereas the control rabbit had big white plump glands

I am convinced that this condition is overlooked in many children, some of them die with intercurrent disease or the condition may be diagnosed as enlarged mediastinal glands some of the cases are passed over as congenital heart disease A few *x* ray exposures in case of doubt might clear up the condition and in such doubtful cases the *x* ray may be applied as a therapeutic test If the condition is an enlarged thymus improvement should *follow* *x* ray exposures *may* thus serve to differentiate this condition

Dr Oliver T Osborne New Haven Conn How does the treatment of the enlarged thymus affect the thyroid gland? Is there any inhibition of thyroid secretion? What is the value of Roentgen therapy in Graves' disease?

Dr Russell H Boggs Pittsburgh The subject is entirely too broad and too important to discuss in a few words I might state, however that brilliant results have been obtained in marked exophthalmos even reduction of the size of the thyroid with entire relief of the symptoms after a few *x* ray treatments

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ESSENTIAL, OR PRIMARY, LATERAL SCLEROSIS *

JAMES HENDRIE LLOYD, MD
AND
S D W LUDLUM, MD
PHILADELPHIA

CLINICAL REPORT BY DR LLOYD

This subject, as I understand it, remains at the present time in much the same state as it was in nearly forty years ago Even the definition of the term is not more precise, therefore, before the subject itself is discussed, this matter of definition should be considered

By *primary* lateral sclerosis, as the term is com
used, seems to be meant a disease of the la
motor, tracts, which is not the result of a
degeneration following on an initial lesion
the degenerated tracts from the motor
brain The process of wallerian de
motor tract is well known, it follows
off the motor fibers from their cell
cortex, it is largely a downward
not exclusively so, for upward de
Such a lesion can be of any
course of the upper motor
rhage or a tumor or a

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* Read in the Section
American Medical Ass
held at Atlantic City

or it may be a trauma or a meningomyelitis in the spinal cord. All that is required is that it should cut the motor fibers somewhere in their course and thus set up a descending, or wallerian, degeneration. This is such a well-known pathologic picture that it need not be enlarged on. It is seen in hemiplegia, in transverse myelitis, in syphilitic meningomyelitis, in trauma of the spinal cord, in multiple sclerosis, in syringomyelia and in other lesions.

In primary lateral sclerosis, if such a disease really exists, there is no such focal lesion, but the degeneration of the lateral tracts is *sui generis*. It occurs by reason of a disease process which is, in a sense, spontaneous in the lateral tracts themselves. In order, however, that this somewhat ideal state should exist, there are several requirements. In the first place, the process should exist only in the lateral tracts and should not extend to them from surrounding tissue as for instance, from a myelitis or a meningitis. In the second place, as already said, it should not arise from a focus of disease situated cephalad of the degeneration. In the third place, it should not be associated with any other system disease, as in the posterior columns or in the anterior horns.

There is one disease, which will occur to all, in which in a sense the disease of the lateral tracts is apparently a primary sclerosis. I refer to amyotrophic lateral sclerosis. This is primary in the sense that it does not follow any known focal lesion; the lateral tracts simply become involved, more or less as a whole, in the cord; in other words, it is a system disease. But amyotrophic lateral sclerosis is associated with disease of the anterior horns; consequently it is not a purely lateral tract disease. It is also sometimes associated with bulbar paralysis. Therefore, it seems to me, if we wish to distinguish a purely lateral-tract system disease, of the kind here indicated, a better term for it would be "essential lateral sclerosis." The disease would be primary, of course, but this term, as I have said, applies also to amyotrophic lateral sclerosis. By the term "essential" would be indicated the fact that the disease is a purely system disease confined to the lateral tracts.

The problem involved in this conception has engaged the attention of neurologists for many years. It is not a new subject. Erb is usually credited with having had such a disease in mind when in 1875 he wrote of spastic spinal paralysis, but this term can include much more than the affection here discussed.[1] Charcot about the same time came nearer to hitting on this idea when he wrote of *tabes spasmodique*. This is a happy term, because it points to an essential lateral sclerosis in much the same sense as ordinary tabes is regarded as a system disease of the posterior columns. The two affections might be considered analogous, one in the lateral, the other in the posterior, tracts. Gowers, in his text-book, wrote a rather extensive chapter on primary lateral sclerosis, in which, however, beyond discussing the subject as a pathologic problem, he really contributed little if anything to its solution. It is not my intention to go into an extended discussion of the literature of the subject. In recent years Spiller[2] has published a paper, based on eight cases, but these cases were mostly examples of amyotrophic lateral sclerosis. Gordon,[3] in 1911, reported a very interesting case, which came as near as any case I have read about to being a true example of essential lateral sclerosis. He also cited a number of examples from other observers.

Dr. Mills' name is identified with the condition known as unilateral, progressive, ascending paralysis, in which the lateral tract of one side is first involved, and the leg is affected before the arm.[4] In such cases, I think, observation extending over a long period tends to show that the disease in time becomes bilateral. Mills' disease may therefore be a true example of a progressive, essential, lateral sclerosis. It is probably a very rare affection. I think, however, that all cases in which in the course of time the anterior horns become involved, and especially in which bulbar symptoms develop later, should be excluded from the category of primary or essential lateral sclerosis. This exclusion applies equally, of course, to the early stages of multiple sclerosis, in which the lateral tract may be among the first parts involved.

Little's disease has been described by some authors as though it were essentially a lateral sclerosis, but Little's disease is properly a birth-palsy and in the majority of cases is doubtless due to trauma. Besides, the term is a bad one and has probably been made to include various diseases.

The relationship of amyotrophic lateral sclerosis to progressive muscular atrophy is doubtless a close one—in fact, the two may be only different expressions of one and the same pathologic process. But this is a subject which need not be discussed here. It leaves untouched the question whether we have such a disease as essential lateral sclerosis.

From the clinical standpoint something can be said in favor of an essential lateral sclerosis. I have certainly seen cases (although they are not frequent) in which no parts of the cord appeared to be involved except the lateral tracts, in which the disease was apparently not the result of a focal lesion, or of a meningomyelitis, the sphincters were not involved, there was no true muscular atrophy, and the condition was progressive. Only recently I have seen such a case in the Philadelphia Hospital.

Case 1.—The patient, a man, began two years ago to have a sense of pain or fatigue in his spine. He began to lose power and gradually developed a spastic paralysis in all four limbs. He is now the victim of a hypertonia, with loss of power in his arms and legs, the arms being almost as much involved as the legs. The deep reflexes of the arms and legs are all much exaggerated. The bladder and bowel are not implicated. There is no more atrophy than could be explained by disuse, unless it be in some of the small muscles of the hands. A few very faint fibrillary tremors are sometimes detected in the shoulder muscles. There are no bulbar symptoms. The only doubtful element in the case is the condition of sensation. The patient has been frequently tested by various observers, and the results obtained are not uniform. Sometimes there has been apparently an entire hemianesthesia, but again he has shown a large segmental band of anesthesia involving his whole trunk. But he has been so frequently examined in hospital routine that I suspect that these varying and incongruous phenomena are probably the results of suggestion—in other words, hysterical. When I last examined him a few days ago he maintained that he could distinguish touch in hardly any region of his body, even the face. I know no organic lesion which would cause such a wide-spread loss of sensation. It is difficult for me to see how a meningomyelitis could be so extensive as thus to involve both arms and both legs, without involving the sphincters, or the anterior horns, or without giving definite and constant sensory symptoms The lateral tracts are alone indubitably involved, and in their whole extent The man denies syphilis, but the Wassermann test is positive An *x* ray picture shows no lesion of the cervical vertebra

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[1] Erb returned to this subject in an address in London in 1902 in which he referred to ten cases gathered from the literature which he regarded as true examples of primary bilateral sclerosis (Lancet, London, 1902, p. 570).

[2] Spiller: Univ. of Pennsylvania Med. Bull., 1905. In another paper read before the American Neurological Association at Boston a few days before my paper was read at Atlantic City Dr. Spiller discussed the subject of syphilis as a cause of spinal muscular atrophy, lateral sclerosis and amyotrophic lateral sclerosis. I have not had the opportunity of reading this paper.

[3] Gordon: New York Med. Jour., Jan. 6, 1912.

[4] Mills: Jour. Nerv. and Ment. Dis., April, 1900; July, 1903; The Journal A. M. A., Nov. 17, 1906, p. 1639.

The following case from the same clinic is also suggestive of an essential and ascending primary sclerosis, although syphilis cannot be excluded Indeed syphilis is doubtless the cause There is also a history of exposure to lead

Case 2 —J D White, aged 33, plumber noticed five years ago that he easily became tired in his legs For example, he found difficulty in lifting his feet while climbing stairs The condition very gradually grew worse until the present condition of loss of power was reached He has been unable to work for three and a half years While he was still able to work after the weakness started, he experienced pain over the lumbar spine during any manual labor

Nervous Examination—Gait Patient is unable to walk Station He can stand on his legs, but only with a great deal of difficulty He loses balance as soon as his eyes are closed Legs are spastic to passive movements There is no spasticity of the arms Reflexes All reflexes of the upper extremities and of the shoulder girdle are exaggerated. There is slight paralysis of the extensor muscles of the fore arms Reflexes of the lower extremities are very markedly exaggerated and the Babinski sign and ankle and patellar clonus are present Abdominal reflexes are absent, cremasteric reflexes are present There is no muscular atrophy Sensation All modes of sensation are intact The bowel is not involved The patient urinates more frequently than usual He must perform the act as soon as he has the desire The stream is forced, but dribbles out Eyes negative

Laboratory Findings—X ray of dorsal lumbar spine negative Wassermann positive Blood examined for basophilic degeneration to prove or disprove lead poisoning, negative Urine, negative This case may possibly be an example of spinal syphilis, in which the meninges are involved, but the gradual and late involvement of the upper extremities is rather against this view

I have but one suggestion to make in reference to this whole subject, and that is on the question of syphilis Have we a syphilitic disease of the cord in which the whole expression of the disease is manifested in the lateral tracts, but which is not the result of a meningomyelitis? Is there a true parenchymatous disease of the motor protoneuron—a disease which might be called an analog to posterior sclerosis? I am aware of the fact that opinions differ about the initial lesion in tabes, whether it is a meningitis, or a disease of the posterior roots, or, as Ferrier seems to maintain, whether it is merely a degeneration of the neuron itself These are fine points, but, with reference to the lateral tracts, they seem to take us back to Charcot's idea of a *tabes spasmodique* The Wassermann test will doubtless have something to do with settling the question of their syphilitic nature, and the pathologists will have to do the rest It remains to be determined whether such cases as I have had in mind are really the result of a syphilitic process, in which the blood-vessels and the meninges are primarily involved, or whether they represent a purely degenerative disease of the lateral tracts It is possible that Dr Ludlum's study of our case may throw some light on this obscure question

PATHOLOGIC REPORT BY DR LUDLUM

The object of this paper is to emphasize three points

1 The exhaustion theory, which has been shown to be applicable to tabes by Edinger, is that biochemical changes in the blood in cases of syphilis retard the anabolic processes in the cells, of which the catabolic changes due to function overbalance the anabolic ones Mott has shown in tabes that the distal ends of the neurons degenerate before the portions adjacent to the supposed thickened pia This, we think, would be more applicable to primary lateral sclerosis than to tabes

2 Another fact is that the point at which the degeneration is demarcated is, in most cases of lateral sclerosis exactly at the decussation of the pyramids, which point is also where the basilar artery divides into the two vertebrales and they in turn give off the anterior spinal arteries

3 In the case here examined, there was a lymphocytic infiltration of the pia which is distinctly suggestive of syphilis

Case 3 —The patient was a man of 70 years He had been on his feet at work until shortly before his admission His legs first were weak and then quickly became spastic The arms showed no loss of strength but were unsteady when voluntarily moved, the reflexes slightly increased The lower limbs were drawn up and so spastic that it was difficult to elicit any reflexes A sufficient response to stroking the sole of the foot was made to establish a Babinski reflex There was no deviation from normal sensory phenomena other than could be explained by mental confusion The sphincters had become paralyzed because of their spastic condition and resulting distention There was no atrophy of muscle in upper or lower limbs or in cranial distribution The picture was one of paraplegia The brain presented no gross lesion other than a small area of softening in the right parieto occipital region which was in no relation to any motor fibers

The cord showed no gross lesions, the vessels of brain and cord were sclerotic but not markedly so The membranes appeared normal Microscopic sections were normal of internal capsules peduncles and pons Just below the decussation of the pyramids sclerosis of the crossed motor tracts was plainly discernible, perhaps more on one side than on the other This observation was repeated in the thoracic and lumbar regions In all levels of the cord, the cells in the gray areas were normal in appearance and number, that is, they were normal for a man the age of this patient and there was no evidence to make one think that they were diseased Throughout the length of the cord the anterior and posterior roots showed no degeneration The pia about the cord displayed a mild lymphocytic infiltration, not such as we see in acute disturbances, but as is observed in long standing states, notably syphilis

In three cases recently examined clinically, a positive Wassermann reaction gave positive results There is a striking resemblance between all tract degenerations, such as amyotrophic lateral sclerosis, essential lateral sclerosis, and tabes, namely, that this infiltration is seen and that syphilis is usually present

Thus it would appear that the overaction or exhaustion of certain sets of neurons in a serum in which there is a distinct chemical alteration, as when syphilis is present, would result in the degeneration of that system abiogenetically the weakest

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ABSTRACT OF DISCUSSION

Dr William G Spiller Philadelphia In the syphilitic systemic diseases of the motor tract, I include lateral sclerosis amyotrophic lateral sclerosis and progressive spinal muscular atrophy I have not come to the conclusion that all such cases are syphilitic in origin, but I think a portion of them are

For many years the syphilitic origin of tabes was a disputed subject We find in tabes a systemic degeneration of the posterior columns In some of these cases there is a slight infiltration of the pia and little or no thickening of the blood vessels I see no reason why we should not have a syphilitic degeneration of the motor system I am not convinced that muscular atrophy occurring with syphilitic disease of the spinal cord is merely an associated condition In determining the possible syphilitic origin of spinal cord disease from a pathologic standpoint, independently of the Wassermann reaction, we should depend, I think, on lymphocytic infiltration of the meninges and thickening of the blood vessels In some cases we will not find even this infiltration We ought to find it, however, with a frequency which would suggest a syphilitic origin I believe that a lymphocytic infiltration is of the greatest value from a pathologic diagnostic standpoint with reference to syphilis It is not pathognomonic of syphilis but merely one of the links in the chain of evidence That is the whole trend of modern German thought, as shown in a recent paper by Nonne, who has said that lymphocytosis of the cerebrospinal fluid occurs in the true syphilitic and parasyphilitic diseases of the nervous system whether they are progressive or have been arrested The cause of this lymphocytosis is to be found in meningitis Lymphocytosis of the cerebrospinal fluid occurs in a considerable number of individuals who have been infected with syphilis but have shown no symptoms Nonne believes that only those syphilitic persons develop nervous syphilis who have a lymphocytosis persisting after antisyphilitic treatment He believes also that the lymphocytosis may be influenced by antisyphilitic treatment (*Deutsch Ztschr f Nervenh* xliii, Nos 3 6)

In lymphocytosis, therefore, we have a very valuable sign of syphilis It is not absolutely pathognomonic, of course There are very few signs that are pathognomonic The Wassermann sign is of the greatest value in syphilis but it has been found in measles and scarlet fever, and has been reported as occurring in lead poisoning and lymphocytosis occurs in various conditions, poliomyelitis for example, but usually we can exclude such conditions in judging of the syphilitic origin of a disease

Dr C L Dana, New York Dr Spiller has deviated a little from the subject of primary lateral sclerosis, though I agree with his sentiment as to the importance of the syphilitic factor in some types of progressive muscular atrophy The point Dr Lloyd brings up for discussion is whether there is not a progressive lateral sclerosis which goes on in just the same way as a progressive posterior spinal sclerosis, i e, tabes, and due probably in some cases if not in all to syphilis Now I am absolutely sure clinically that there is such a disease I have seen and watched for a number of years patients who have begun with the ordinary symptoms of Erb's spinal paralysis These patients developed a progressive spinal spastic paraplegia year after year getting a little worse and worse and going on in just the same way progressive tabetics do when we do not get them under control This so impressed me some years ago that I have taught that syphilitic spinal paraplegia has two types in one of which the disease becomes arrested or practically recovers, while in the other the disease goes steadily on with perhaps some arrest or temporary remission, forming a progressive spastic paraplegia of luetic origin I can quite confirm Dr Lloyd's opinion that there is such a condition I know there is clinically and I always expect when I get a case of spinal paralysis of luetic origin to have it either controlled and cured or else to have it go on steadily like a tabes to which it has absolute analogies

Dr Alfred Gordon Philadelphia In my work to which Dr Lloyd has reference I was unable to determine any evidence of involvement of any other tract except the cross pyramidal beginning at the level of decussation The patient presented a primary paralysis downward The question is what could be the nature of the trouble There is no question but that syphilitic infection may produce all varieties of organic affections of the central nervous system Philadelphians will recall that I exhibited a case of a middle aged woman who had a number of miscarriages, who developed and presented on several occasions a strong positive Wassermann reaction, and who developed a progressive muscular atrophy of Aran Duchenne's type also in the peroneal group of muscles That case was unquestionably to my mind one of the class to which Dr Spiller referred, and there is no doubt that syphilis is capable of producing primary lateral sclerosis But how about those cases in which we do not find lymphocytic infiltration or any evidence of syphilis? It is in such cases that there must be something inherent, something congenital, some defect, some anomaly in construction and development, a primary anomaly in the pyramidal tract I believe that the cases, beginning with Erb's and Charcot's and those following, including Dr Lloyd's case and my own, must belong, like amyotrophic lateral sclerosis, syringomyelia and progressive muscular atrophy, to an anomalous non syphilitic class, to abiotrophies

Dr W M Leszynsky, New York Since the introduction of the study of the cerebrospinal fluid and the serum Wassermann reaction, I have made it a point to have my patients brought to the hospital and carefully studied in that regard Within the last year, I have had several patients of this type, cases that are familiar to all of you clinically A woman, aged 25, without any history of syphilis, or traumatism, or previous history of acute spinal cord trouble, gradually develops the usual type of spastic paraplegia with the customary symptomatology Careful study of the cerebrospinal fluid reveals no lymphocytosis or any of the different phases, described as indicating syphilitic infection, and the serum Wassermann reaction is negative In spite of negative laboratory findings, patients of this type have been given a thorough course of antisyphilitic treatment without benefit Such patients cannot consistently have their disease ascribed to a syphilitic infection, particularly if we are to lay any stress on the present day methods of study of the cerebrospinal fluid and the blood serum We have observed such cases for many years, and with our present knowledge, to call them anything else but primary lateral sclerosis, it seems to me, would be out of the question

I remember the earlier teachings of Dr Dana in regard to the matters he just mentioned, and I do not believe that he has any reason to change the views he held twenty five years ago

Dr Arthur C Brush, Brooklyn We do not see these cases post mortem until a long time after the disease has begun, and the lymphocytosis and other evidences of syphilis may disappear

Dr. E E Southard, Cambridge, Mass No one disputes that lymphocytosis arouses strong suspicion of syphilis Yet to rely on mononuclear infiltration as a sign of syphilis seems to be harking back to the pathology of a decade ago We ought to rely on the Wassermann and kindred reactions and on more extended studies of cases that are to come rather than on lymphocytosis exhibited in cases past

Dr Wilder Tileston had a case of ankle clonus in a child that died of pneumonia The autopsy showed, at the decussation, a lymphocytic infiltration of the artery There was a certain amount of degeneration of fibers all over the spinal cord. The question arose, was the clonus due to that lesion? What might the case have been? It might have been a case of pneumococcus meningitis in which the coccus had caused the infiltration It might have been a case of pneumonia complicated by a case of anterior poliomyelitis or pneumonia complicated with syphilis But I do not see how the suspicion of syphilis is raised in any strong degree But in this case I think more likely the exudate was produced by the pneumococcus Is Dr Spiller dealing with more than a suspicion? It seems to me he is not dealing with proof when he speaks of mononuclear infiltration in these cases Aside from the acute production of lymphocytosis in the late stage, which can also be shown to occur both in human cases and experimentally I see no reason for deviating from the attitude adopted about this matter last week.

Dr Albert E Sterne, Indianapolis Twenty five or thirty years ago von Leyden showed the relationship between amyotrophic lateral sclerosis, progressive muscular atrophy and progressive bulbar palsy He made the statement that essential lateral sclerosis was, to his mind, exempt from such rela tionship That attitude I do not see any reason for changing to day As a matter of fact, cases of amyotrophic lateral sclerosis, which we are wont so to recognize bear very different ear marks from those cases which we are wont to see and speak of as tabes lateralis or primary lateral sclerosis It is to my mind unfair, and it is not even altogether scientific, because an individual has suffered and shown typical clinical manifestations for twenty five years, indicating essential lateral sclerosis, and then just before death manifests certain symptoms of association with the anterior horns to say that on account of that late association the former disease namely the primary lateral sclerosis, was not a disease *per se*, but simply a long drawn out manifestation of what we would ordinarily call primary amyotrophic lateral sclerosis This late association, which we find also in other diseases of the nervous system, such as epilepsy, in which degeneration occurs ought not, it seems to me, to take from beneath our feet the safe ground, that there is a rare disease which affects the lateral columns of the cord alone that this disease is essential or primary lateral sclerosis, and that it may be often syphilitic in type There is no question at least on that subject

DR J H W RHEIN, Philadelphia I have seen and reported cases which showed round cell infiltration associated with degeneration of the lateral columns without any evidence of a gross lesion in the cerebrum to account for it cases which I have worked on as instances of cerebrospinal syphilis I shall report this afternoon a similar case I have reported cases under the name of double hemiplegia in which there was no gross lesion to account for the degeneration in the lateral columns I believe that in these cases in which the lesion is microscopic it is essential to make serial sections in order to make a positive pathologic diagnosis We find in these cases a specific process and associated blood vessel disease involving not only the white matter and pia of the brain but also the spinal cord I believe that in Dr Lloyd s case there was some blood vessel disease as well as round cell infiltration, and it occurred to me that this was really not an ordinary case of lateral sclerosis, but perhaps one of syphilitic cord disease

DR J H LLOYD, Philadelphia Dr Spiller has touched on the important point involved, which, of course, as we all recognize, is the question of syphilis It may be that in reference to these primary lateral tract degenerations we are somewhat in the same position now that we were twenty or twenty five years ago with reference to posterior sclerosis At that time we were only gradually coming to the belief that tabes was due to a syphilitic infection I think that, with the Wassermann test and with increased facilities and improved technic for pathologic studies, it may yet be found in these cases of essential lateral sclerosis that we have to deal quite largely with a syphilitic process If that be true, the mere determination of whether or not the disease process is entirely in the lateral tracts or partly in other tracts, becomes in a sense a matter of secondary importance I think as a term, however, it would be better that we should call this condition an essential lateral sclerosis Dr Southard has very wisely called attention to the fact that we should not allow our minds to dwell too exclusively on syphilis There are other infections of the central nervous system besides that which is caused by the spirochete of syphilis I fully agree with the statement that we may possibly have here occasionally the manifestations of some other infection

DR S D W LUDLUM, Philadelphia In answer to Dr Rhein there were no hemorrhages, embolisms or anything of that sort which would cause the disturbance

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A New Fish Story—An American, touring in his automobile in Southern Bavaria, on renewing the carbid charge in his acetylene generator, emptied the old carbid into a small stream—probably out of pure thoughtlessness The result, however, was a summons from the authorities and a suit for damages for having killed a large number of fish in the river by the gases developed from the carbid residue

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REPORTING OF SUSPICIOUS CASES BY THE LAITY A PREREQUISITE TO THE EFFICIENT CONTROL OF COMMUNICABLE DISEASES *

MYER SOLIS COHEN AB MD
PHILADELPHIA

The more or less effective regulations to protect the public from persons afflicted with a contagious disease are naturally enforced only in cases that are reported to the health authorities The unrecognized case is subjected to no restrictions at all the recognized but unreported case only to those the family voluntarily observes

It has been my belief that the spread of contagious disease occurs chiefly through the unreported and particularly the unrecognized cases Until every case is brought under the control of the health authorities no real progress will be made toward limiting or stamping out communicable disease

UNREPORTED CASES

For each reported case of notifiable disease there are many unreported Some physicians even make a practice of not reporting their cases for which very reason they are employed by families who desire to avoid restrictive measures A premium is thus placed on dishonesty, the physician who evades the law gaining practice at the expense of the honest practitioner It is foolish to expect all medical men to report their cases of contagious disease so long as no effort is made to find out and punish those who violate the law

In many instances especially when the attack is a mild one, no physician is consulted, lest he report the case The mother herself treats the patient with home remedies This is true particularly of secondary cases, in which treatment is carried out according to the directions the physician gave in the primary case Naturally many mistakes of diagnosis are made the most serious being the mother's mistaking mild scarlet fever for measles or rubella, or even a stomach rash

Persons who would not object to have the disease reported often dispense with a physician for financial reasons when the patient is only slightly ill Such cases without medical attention could be brought to the notice of the health authorities if, in the absence of a physician, the parent or householder were required to report notifiable diseases, as they are now compelled to report a birth

UNRECOGNIZED CASES

The most potent source of contagion in my opinion is the unrecognized case, for the family usually takes some precautions in regard to a recognized case that is not reported Even a physician sometimes fails to recognize a contagious disease, especially when it occurs in a mild or atypical form Without a culture, for example, it is practically impossible to diagnose latent diphtheria In most instances, however the fault lies with the parent, who does not regard the condition as sufficiently serious to warrant sending for a doctor

Thus it is that large numbers of children with mild or latent diphtheria are looked on as suffering from sore throat or tonsillitis and instead of being isolated, attend school, frequent moving-picture shows and mingle freely with their playmates, inoculating many who thus become carriers or who may even have the disease in typical clinical form, and these children never know how they contracted the disease. I have already gone into this subject more fully.[1]

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* Read in the Section on Preventive Medicine and Public Health of the American Medical Association at the Sixty-Third Annual Session held at Atlantic City [illegible] 1912

In like manner numerous persons with unrecognized scarlet fever walk about the streets and attend school, especially during an epidemic of measles or rubella. Many of these cases are never known; some are discovered merely by accident. To illustrate, I shall recite the accidental discovery by me in one month of eleven cases of scarlet fever during an epidemic of measles.

May 21, 1911, I was sent as medical inspector to examine a child who was reported by the attending physician as having scarlet fever, but whom the ambulance physician had pronounced not to be suffering from the disease. After confirming the attending physician's diagnosis, I inquired if anyone in the house had been sick recently, and was shown two children who were said by the mother to have had measles. Both were desquamating. On asking if there were any cases of rash or measles in the neighborhood, I was referred to two children in a house on the next street, who were supposed to have had measles but whom I found in active desquamation. Had a third case not developed in the first house, these four cases probably never would have been discovered.

Three weeks later, June 14, I was sent to examine a child reported by the attending physician as having a suspicious case of scarlet fever. The physician had not been summoned for the general illness but for an infected burn produced by a home-made mustard plaster. I made a diagnosis of scarlet fever and, inquiring for other instances of recent illness in the house, found a child of another family in bed on another floor, supposedly suffering from measles but really in the eruptive stage of scarlatina. I also obtained a history of three other children in the house having been successively attacked with measles during the previous two months, but on examining two who had been ill six and eight weeks before, respectively, could find no evidence of desquamation. The third child being in school, I examined her there and found her hands peeling. She was living temporarily with a married sister whose baby she said had had the measles, but whom I found to be convalescing from scarlet fever. These four cases would probably never have been known had one patient not been burned by a home-made plaster. As it was, two additional patients with probable scarlet fever got well without recognition.

How easy it is to miss the mild case that often starts an epidemic may be seen from the following instance, which occurred a few months later. Two children developed a rash but were not very sick and received no medical attention. Half a block away a case of scarlet fever developed, no one knowing how the disease was contracted. Five days later a case of scarlet fever was reported from the house where the two children had been indisposed. While making a report on this latter case, I learned of the illness of the other two children and examined them, finding evidence of desquamation in both.

Measles and rubella, especially when occurring in a mild form, frequently fail of recognition, being called "strawberry rash," "stomach rash," "spring rash," "ivy poisoning," "hives," and the like. Mild attacks of mumps of short duration, with very slight enlargement of the parotid gland and no distress on eating sour things, are usually overlooked or regarded as "swollen glands," "glandular fever" or an "ulcerated tooth." Sometimes chicken-pox is unrecognized. Until the "whoop" develops, parents as a rule pay little attention to whooping-cough. Seldom in these various instances is a physician consulted.

Is it any wonder that health officers are disappointed at the high incidence of preventable communicable diseases despite the most modern methods of combating them? How can anyone expect that the control of a mere fraction of the total number of cases of contagious diseases will do much toward stamping them out? Be the isolation of the reported cases ever so thorough, infection still proceeds from those who are going about unrestricted with unreported and unrecognized cases. All efforts to stamp out communicable diseases must necessarily fail until the public health authorities gain control of all the cases.

Is there any way by which the unrecognized and unreported cases can be brought under the supervision of the public health authorities? Is such a thing not impossible? I believe it to be not only possible but practicable. Nearly every case of illness is known to a number of persons, who usually also are aware when there is a suspicion of its being contagious.

REPORTING OF SUSPICIOUS CASES

Many of the cases not reported to the health authorities are reported to other public officials. The vast majority occur among school children or in their homes a large proportion during the school term. In such cases the parent often notifies the school of the child's illness, sometimes giving the name of the disease. When this is not done it is customary for the teacher or principal to send word to the parents asking the reason for the child's absence. In many cities an attendance officer visits the home to learn why the child is not in school. It would be a perfectly easy matter for teacher, principal or attendance officer, on learning of the existence of a contagious disease, to report the case to the health authorities, who thereupon might investigate. Even when such disease is only suspected, the report of a suspicious case might be made, giving the grounds for the suspicion. This would include all cases of rash under any name, rumors brought by the school children, and unexplained or inadequately explained absences, especially during an epidemic. In schools having medical inspection the case might first be referred to the school doctor, who would decide whether the facts warranted the case being reported to the public health authorities as suspicious.

Neighbors as a rule know what is going on in each others' homes. The recognized but unreported cases of which they have no knowledge are, indeed, few. Of the suspicious cases they also usually have cognizance. Most persons, however, dislike telling on their neighbors for fear of incurring annoyance or inciting enmity. Some even side with their friends against the sanitary officials.

It nevertheless is my belief that if the laity were educated to realize the danger to themselves and their families as well as to others of the uncontrolled case, and the insidiousness of the unrecognized case, if they were frankly told that the prevention of communicable disease is possible with their aid and impossible without it, and if, moreover, they were taught to regard it as a civic duty to give this aid in the protection of the public health, their cooperation could be obtained. But then the responsibility would be on the sanitary authorities to see to it that the good do not suffer while the evil escape It would be their duty to enforce the laws against all and to prosecute those who break them They will know when a physician has failed to report a case and they will be expected to hold that physician strictly to account And should a law be passed requiring the householder to report contagious and suspicious cases occurring in his house, they must proceed against all who are found violating that law For the cooperation of the public is not to be hoped for in any unfair administration of the law that subjects those who comply with it to restrictive measures which those who disregard it are permitted with impunity to escape

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[1] Solis Cohen, M.: Latent Diphtheria, a Public Health Problem, The Journal A. M. A., July 6, 1907, p. 30; Diphtheria Carriers: Their Discovery and Control, The Journal A. M. A., Jan. 9, 1909, p. 111.

Without the aid of the laity I believe it is impossible to stamp out communicable diseases With their active assistance I have little doubt that it will be possible to prevent most of the contagious diseases which hitherto have not been effectively controlled

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ABSTRACT OF DISCUSSION

Mr. W A Howe, Albany, N Y We are coming more and more to believe and to know that most of our communicable diseases are transmitted by carriers—that it is not so frequently the bedridden patient who is transmitting disease, as the person with unrecognized disease. Here as elsewhere in our work we must conduct an active campaign of education to teach, through the family physician, the parents of these carriers and many dangers incident to the prevalence of such disease There is but one way to reach them—not through the neighbor, as I do not believe it is either right or neighborly to expect a neighbor to report clandestinely the presence of communicable disease in the next door family, but through the *family physician*, who should place in the hands of the mother, proper literature explaining the danger of these diseases, their extensive prevalence in these mild forms, and the imminent danger of spreading fatal infection to others We must teach them the necessity of giving better attention to the convalescent, and the absolute necessity of proper isolation, however mild the affection may seem to be, until the child ceases to be a carrier

Dr. Walton Forest Dutton, Carnegie, Pa It seems to me that the general practitioner receives much more censure than is his due, as regards the report and care of these diseases The laws should be enforced, but the blame should be placed where it belongs If local health authorities were prompt in doing their duty, the physician and the state could cooperate with distinct advantage to both It does not avail anything for the physician to report diphtheria, scarlet fever, etc, unless the sanitary regulations are carried out by the local health authorities A great many boroughs have an ordinance which is a modification of the state laws This ordinance does not comply, in full, with the state law Therefore the physician is not enabled to do his full duty to the state I concur with what has been said by Dr Cohen The reporting of suspected cases is a prime necessity We can very often detect measles on the mucous membrane of the soft palate and other parts of the buccal cavity one or two days before the eruption appears The same may be said of diphtheria and scarlet fever

Dr. Otis B Nesbit, Valparaiso, Ind The health officer too frequently goes and tacks up a card and calls that quarantine, and then asks Why don't people report quarantinable diseases?" A good many cases are not reported because the family cannot afford to be quarantined The wage earner cannot afford to be shut out of the house and be compelled to pay for board some place else Or, the regulations may be such that he may be shut up in the house and be compelled to stay there and no one in authority visits the family to provide its needs.

This is the most important question, I have found locally in enforcing quarantine First tell your people what quarantine means, second, a demonstration of this idea of quarantine in a humane manner, and when you get your people to understand that that is what you are doing you will get contagious disease reported Physicians will not report cases, because they say "I know the poor devil couldn't afford it, and I would rather call it a strawberry rash it is mild and does not amount to anything anyway" If the authorities are properly caring for those quarantined, the physician will report his cases

We have not been treating them just right in some localities, and when we stop mistreating the unfortunate citizen we shall not have much trouble about getting reports Then also our knowledge is so indefinite We know so little about these diseases, and we have been guessing so much In Indiana, we asked the state board of health last year to make a uniform quarantine regulation, and now we are sorry we did it, because they went to work and made a minimum quarantine on scarlet fever of twenty one days and there are a few towns maintaining a quarantine of six weeks, which I do not think long enough for an arbitrary time limit, and we have neighbors around us that quarantine the minimum of twenty one We are reaping the benefits from their short quarantine by their citizens visiting friends in our city immediately after release from quarantine and communicating the disease to the citizens of our city Quarantine regulations should be the same in all counties, in all states and in all nations

Mr. LeGrand Powers, Washington D C One of my youngest children was taken sick on a Saturday morning Scarlet fever was not suspected, by Monday the child was fairly well and went back to school A week later another child was taken sick and we sent for the doctor who pronounced that second case a case of scarlet fever, by that time the first child was beginning to show signs of having had the disease the week before

We must recognize the fact that there are multitudes of cases among the less educated that correspond to this case among the fairly well educated family In some way or other, through our board of health we must carry home to the average family the knowledge that they could detect these hidden cases and so do their part as citizens in lessening the spread of *contagion*

Dr. Creighton Wellman, New Orleans It seems to me that a principle which should be recognized in a discussion of this question is that when a disease is to be considered as reported, all suspicious cases of this disease should be reported to the local board of health A following out of this simple principle will answer many of the objections which have been brought against the thesis presented by Dr Cohen In New Orleans, the board of health has a requirement that unreportable diseases and all suspicious cases should be reported along with the actually diagnosed cases, and the physician or the family may call on the board of health to aid in the decision as to whether the given disease which is *evidently suspicious is* really to be classified as a reportable disease or not.

Dr Pauline M Townsend Hanson Marshalltown Iowa One of the physicians spoke of educating the mothers, by giving literature to the mother who had sick children The woman who has sick children has no time to read literature—unless possibly in regard to the care of the child—certainly not in regard to the importance of reporting the disease Most women who have the care of families and households, even though there is no sickness to hinder them will take time to read how to *make clothes and to cook and to perform* other household duties but will seldom take time to read dry literature on medical subjects The mother has not time unless she belongs to the *privileged few of the wealthy class* she has not been trained to an interest in scientific let alone dry medical, subjects Comparatively few young American women have the limited amount of scientific education given in our high schools many of those among the poorer classes, in which more sickness exists because of insanitary conditions have never even passed through grammar grades can not read articles that contain simple medical words In some talks that I have given to these women I have been simply amazed to find among those considered fairly educated, almost absolute ignorance of simple medical terms People will listen to a talk, whereas they will not read the same thing in printed form, when they do not understand they are so reticent they will not ask someone what this or that word means, because they do not want to show their ignorance Women who will go to the medical talk are but a very small percentage of the women who have to deal with sick ones Medical education must be developed long before women have the hindrances of household cares, it must be done in the school room, when the woman is yet a child We must devise some method of increasing the scientific knowledge given to children through the public schools on health subjects In addition, it ought to be possible to educate the public by having public health exhibits in our county and state fairs throughout the United States In Iowa we have baby health contests at the state fair and various county fairs This interests the public, and the newspapers are glad to give it a great deal of prominence In the county that I come from, the county fair board has created a public health division, with a superintendent, on the same footing exactly as the other divisions of the county fair In this division we will have a baby health contest There will be three classes of competitors and three first prizes The prize, $10, is higher than that for the hog, cattle or the horse

Dr. Arthur R Reynolds, Chicago We have given voice to one sentiment here that I want to commend that is, the hope that contagious diseases will some day be eradicated It is going to be difficult to accomplish, but that is what we are here for If any one doubts, let him look back over the mortality list for contagious diseases in the last twenty years They are diminishing everywhere Just where the vanishing point will be I cannot tell

Mr W A Howe, Albany, N Y As in many other states, in New York we publish various leaflets of instruction on several communicable diseases These are published in sets, one intended for circulation among health officers and physicians, the other to be used among families afflicted with these diseases We likewise have individual cards on which to report the various communicable diseases and during the past year in certain sections of the state we have been sending to the various physicians a package containing such leaflets as are published by our department, together with several complete sets of cards on which to report communicable diseases, as well as other literature bearing on public health. At the same time, a personal letter has been addressed to the physicians advising them of material being sent and urging their cooperation in our endeavor to secure complete registration of all communicable diseases, as well as of births and deaths In this letter the commissioner has urged the physicians to place in the hands of every family in which a communicable disease exists literature relative thereto with a view of informing such families of the true character of such disease and the necessity of complying strictly with certain rules and regulations so necessary for their control This plan, where tried, has proved very satisfactory and Commissioner Porter is seriously considering the advisability of extending its application throughout the state

Dr. M. Solis Cohen, Philadelphia The speaker who said that these diseases should be reported, not through the neighbors, but through the family physician, failed to explain how this could be done in cases of persons having no physician, which represents probably nine tenths of the minor and one half of the major contagious diseases, and how that would help where the physician will not report the case especially if he is kind hearted and thinks the family cannot afford to be kept home and so pronounces scarlet fever, "strawberry rash,' and allows the patient to go about spreading the disease throughout the neighborhood. Did another speaker mean to leave literature at the houses in which there are unreported cases? How shall we know where such houses are? Most boards of health leave literature where cases are reported.

The best place to educate the people is in the newspapers, as practiced by Dr Evans in Chicago and Dr Neff in Philadelphia The American people read the newspapers and look eagerly for these health articles A person complained to me of a rule of which he was in ignorance, saying that he read the papers faithfully and failed to see any reference to it The people can also be educated by lectures at county fairs and in school buildings There are plenty of ways to teach them how important it is that all cases of contagious diseases should be known As soon as they realize that it is their children who are saved by such methods, I think they will be willing to help There are many ways in which contagious diseases can be discovered When a child has been absent from school it is very easy to examine him on his return and see if his hands are peeling, and, if he has had a sore throat, to take a culture It is possible to have a rule that all sore throats must be cultured The laity usually knows when there are sore throats about Even when you educate the people there will always be some who are unteachable, or vicious, or who are unwilling or who feel they cannot afford to be subjected to restrictions These will not report their cases, no matter how much we teach them, and unless we have some other way, through their neighbors or through the school authorities, we shall never hear of their cases When the laity are taught that peeling hands probably means scarlet fever and that rashes and sore throats may indicate a mild form of a very serious disease, they will be willing, I believe, to bring such cases to the attention of the health authorities

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PATHOLOGIC STUDY OF A CASE OF ACUTE POLIOMYELITIS *

A L SKOOG, M.D
KANSAS CITY, MO

I wish to present this short discussion with photomicrographs to make record of two distinctive findings in a case of acute poliomyelitis One of these in particular is the demonstration of all coats of smaller arteries involved in the inflammatory infiltration, and the other an illustration of a hydrops of an anterior horn cell The case will be outlined briefly, the salient positive facts being stated, and a discussion of the pathologic points that seem striking made more in detail

The patient furnishing the material for this study was never seen clinically by me I was asked by Dr Frank Hall to participate with Dr Castle at the autopsy and was given charge of the brain and spinal cord

The patient was a male, aged 19, who died on the sixth day of the illness The case was initiated with fever and pains in the back of the neck and along the spine The first evidence of motor paralysis appeared on the third day The palsy advanced progressively to the lower extremities, left arm and neck muscles Finally inability to swallow, partial aphasia and contracted pupils were observed Death occurred from respiratory failure with paralysis of the diaphragm The symptomatology and course were characteristic of a severe *foudroyant* case of acute poliomyelitis

The morbid anatomic study is confined to the brain and spinal cord, consent for an autopsy having limited us to those organs

Macroscopically the dura appeared normal The pia and arachnoid presented some edema in plaques over both the cord and the encephalon A number of congested hyperemic areas were observed over the entire brain, the left hemisphere more than the right Probably some excess of cerebrospinal fluid existed Sections through the brain showed nothing abnormal Cut surfaces from the brain-stem showed some hyperemia, especially in the medulla and pons, but no hemorrhages

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912.

There were undoubtedly edema and hyperemia in the cord segments, most severe in the cervical and lumbar enlargements

For microscopic studies I have used the hematoxylin-fuchsin-picric acid and Nissl stained sections All the segments of the spinal cord and blocks from the medulla, pons, mesencephalon, thalamus and cortical regions were sectioned, and stained preparations made

The inner meninges over the entire spinal cord showed a round-cell infiltration, which was more or less spotted, much of the pia being entirely free, especially over the dorsal aspect The meningeal involvement over the medulla, pons and mesencephalon was similar to that of the cord The degree was less over the hemispheres where the walls of the vessels were comparatively less involved, the larger arteries being entirely free

An examination of the different spinal cord segments for infiltrations showed an extensive involvement, the gray substance and particularly the anterior horns being especially attacked All segments showed a marked involvement of the anterior commissural artery The infiltration in the medulla, pons and mesencephalon is similar to that in the cord, but possibly more acute, especially in the medulla It is greater in the nuclear regions I found no areas in the cortex involved In a few places mild infiltration was observed in the pial projections but exactly delimited

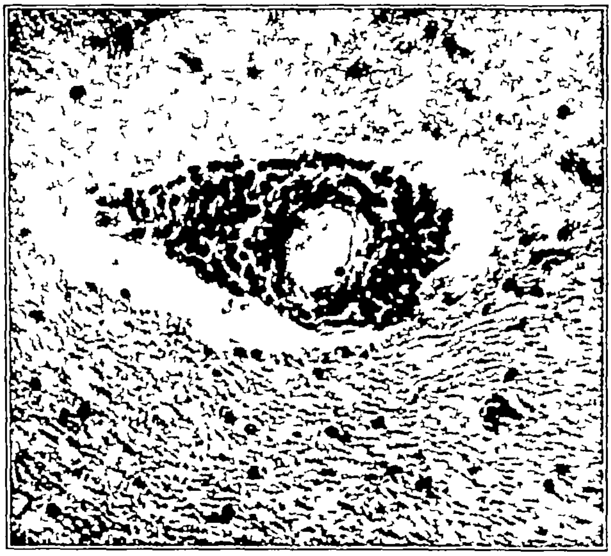

Fig 1—Round-cell infiltration of an arteriole.

The vascular tunics involved will be considered now The larger number of capillaries showed much infiltration of the thin walls and in the immediately surrounding areolar tissue The veins, especially the smaller ones, showed the greatest amount of infiltration Many of the veins had all the coats involved others only the adventitia The perivascular soft structures were involved heavily as a rule Some vein walls seemed to be almost disintegrated by the massive invasion of mononuclear cells

In the arteries a somewhat different invasion was observed The very largest ones particularly those of the pia presented no pathologic changes the adventitia being quite free In the surrounding connective tissue however a cellular invasion was observed frequently A number of small arteries or arterioles were found that presented pathologic changes with a round-cell invasion not only in the adventitia but also in the media and intima In many the invading cells were seen only in a fraction of the vascular wall, a portion of neighboring intima and media being free I have selected one of these for the photomicrographic reproduction (Fig 1), which is a smaller arteriole from the white substance of the medulla at the level of the decussation It shows the perivascular space quite free from cells the perivascular tissue heavily invaded with round cells most of the adventitia involved a circumferential portion of the media showing an infiltration and a smaller part of the intima having a few invading round cells

At this point I might discuss briefly a few prevailing ideas of the vascular infiltrations in acute poliomyelitis and, possibly some of the misconceptions It has been suggested that the vascular and perivascular cellular invasion might be a post-mortem state I do not take much stock in such a belief and do not deem it pertinent for a discussion here Wickman[1] of Stockholm gives a brief but good account of the vascular infiltration but states that the intima and media are not involved Harbitz and Scheel[2] give the location of the infiltration first and foremost in the adventitial lymph-spaces veins and capillaries more than arteries, and say nothing about muscularis, elastica and intima Strauss[3] mentions the importance of adventitial and perivascular infiltration but says nothing about muscularis elastica or intima I quote from Flexner [4] "The infiltration is within the adventitial coat while the muscularis coat and the intima remain intact although the lumina of the vessels are often encroached on through compression"

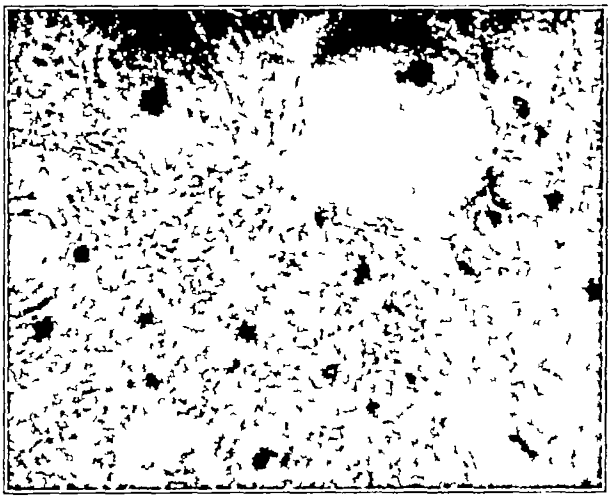

Fig 2—Edema of an anterior horn motor nerve cell

The nerve cell degenerations as shown in the Nissl stained specimens were of an extreme degree in all the segments of the spinal cord Only a very few of the anterior horn cells remained and all these showed chromatolysis In lesser degree were Clark's column cells and posterior horns involved. Various types of tigrolysis were observed in the nerve cells of the motor centers in the medulla and pons. My second photomicrograph (Fig 2) shows two motor cells with hydrops. Almost complete axonal degeneration, complete tigrolysis and nuclear displacement to the periphery are illustrated. The larger cell, which is much swollen, shows distinctly the nucleus with the nucleolus displaced from the center to the extreme periphery. In addition there is a darkly stained smaller body within the nucleus beside the nucleolus. This may be an invading body or a nuclear extrusion product.

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[1] Wickman Studien über Poliomyelitis acuta Berlin 1[illegible] p 18[illegible]

[2] Harbitz and Scheel Pathologisch-anatomische Untersuchungen über akute Poliomyelitis u verwandte Krankheiten Christiania 1907 p 117

[3] Strauss Epidemic Poliomyelitis Report of the Collective Investigation Committee on the New York Epidemic of 1907 New York 1910 p 81

[4] Flexner The Contribution of Experimental to Human Poliomyelitis THE JOURNAL A M A Sept 24 1910 p 1107

CONCLUSIONS

The vascular nature in the pathology of acute poliomyelitis in its attack on the central nervous system is now quite generally appreciated. Perhaps the same may be said about the infiltrations of the pia and arachnoid with their septal projections and the anterior commissural vessels of the spinal cord, and the much greater attack on the entire anterior horn substance as well as particularly its blood-vessels. I agree with several other workers regarding an absence of inflammatory involvement of the perivascular spaces. The literature is silent, vague or incorrect about the more minute anatomic localization of invading round cells or inflammatory cells. The perivascular tissue, which must not be confused with the adventitia, comes first in the frequency and severity of pathologic changes. The adventitia is a worthy second and its cells and fibers may be completely disintegrated by the thick invasion of cells. All coats of the veins are frequently involved. The large arteries have invaded only their perivascular structures, the moderate-sized ones the adventitia also, and the small arteries or arterioles may have an infiltration of intima, elastica and muscularis as well as the frequently involved adventitia. It is possible that some of these severely involved vessels have necrosing tunics with resulting thromboses or ruptures of the walls. I believe that the infiltrating cells give us evidence of a defensive process, and all indicates the particular quantitative localization of the virus of acute poliomyelitis in the tissues.

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ABSTRACT OF DISCUSSION

Dr E E Southard, Cambridge, Mass: The question of the atrium of infection in poliomyelitis is separate from that of the principal site or sites of lesion. Whether the pia mater or the central gray matter is the region in which the virus first exerts effect is not necessarily shown by the distribution of exudate. Experimental work indicates that the same virus may produce disease of different type in different animals of an inoculation series. Thus, whereas the majority of experimental animals exhibit the characteristic focal spinal cord hemorrhage with lymphocytosis, a few may show little but meningitis and yet their tissues on inoculation transmit the now usual form of the disease.

In some material of Lucas and Osgood, the late Dr E W Moores and I found nothing but peripheral neuritis of the Gombault Stransky type in a monkey whose tissues on inoculation transmitted the more usual form of hemorrhagic and lymphocytic poliomyelitis. The occurrence of a true peripheral neuritic form of poliomyelitis may therefore be suspected to occur in man—a form distinct from the results of wallerian degeneration so common in destructive anterior horn lesions and distinct from the neuritic form (Wickman) of poliomyelitis. For there, according to Wickman, we have the simulation of the neuritis due to characteristic distribution of exudate in the spinal cord, possibly, as the later writers have insisted, in the posterior roots, or even in the posterior root ganglia, but distinct from infiltration and secondary degeneration. There may be, we thought as a result of this work on the monkey material, a form of neuritis of the Gombault Stransky type in poliomyelitis. Further clinical work may differentiate such cases from the more ordinary forms.

Dr. S Leopold, Philadelphia: I wish to call attention to a case seen with Dr Pittfield which is rather interesting, because it was one of the neuritic type of poliomyelitis of Wickman. This case is the only one on record, so far as I am aware, in which the opportunity occurred of studying the peripheral nerves. The case presented the ordinary type of poliomyelitis with acute onset, paralysis of the lower limbs, which, however, was unsymmetrical, and tenderness over the nerve trunks, during the entire period of illness, lasting two months, the knee jerks were lost, and there was bladder disturbance. The case had been diagnosed as multiple neuritis.

At necropsy I found a true picture of the reparative stage of poliomyelitis, but I found the curious fact that the peripheral nerve, which was examined and placed in osmic acid immediately at necropsy, showed practically no degeneration that could account for the tenderness, while the spinal cord showed an intense meningitis, most significant was the involvement of the posterior roots, the exudate being in the posterior root. The congestion of the vessels was intense, and I believe that the tenderness over the nerve trunks was of central origin. The case is rather unique in the history of poliomyelitis.

A SIMPLE OPERATION FOR REPAIR OF THE FEMALE PERINEUM, BASED ON THE ANATOMY OF THE PARTS *

WALTER B DORSETT, M.D
ST LOUIS

"The female perineum includes all those structures which fill the outlet of the pelvis." This seems to be a sweeping definition, but such it is according to Deaver.[1] Speaking in the broad sense, this may be admitted to be true. Still, when we consider the repair of injuries due to traumatisms incident to labor, we speak of the perineum in a more restricted sense. In considering it from the view point ordinarily taken, we confine our attentions rather to injuries involving the structures anterior to the posterior margin of the anus, the exception to this rule being the consideration of tears extending beyond this orifice or encircling the lower end of the rectum or the backward splitting of the coccygeal ligament.

In presenting a description of this operation I am aware of the fact that the literature is teeming with descriptions of many operations which in the hands of those who first brought them forward have yielded good results. It is my belief, however, that in the consideration of the subject of lacerations of the pelvic floor, too little attention has been paid to the complex anatomic structure of the perineum, and as a consequence structures unlike in composition and function are coaptated and a perineum is produced that does not functionate in the manner intended by Nature. The loss of tissue due to denudation, the excision of scar-tissue and the union of unlike tissues are apt to result in haphazard union.

In the presentation of this paper I wish to make the broad statement that the word 'denudation" should not

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* Read in the Section on Obstetrics and Gynecology of the American Medical Association at its Sixty Third Annual Session held at Atlantic City June 1912.

* From the Department of Obstetrics and Gynecology, St. Louis University School of Medicine.

[1] Deaver: Surgical Anatomy ii 655.

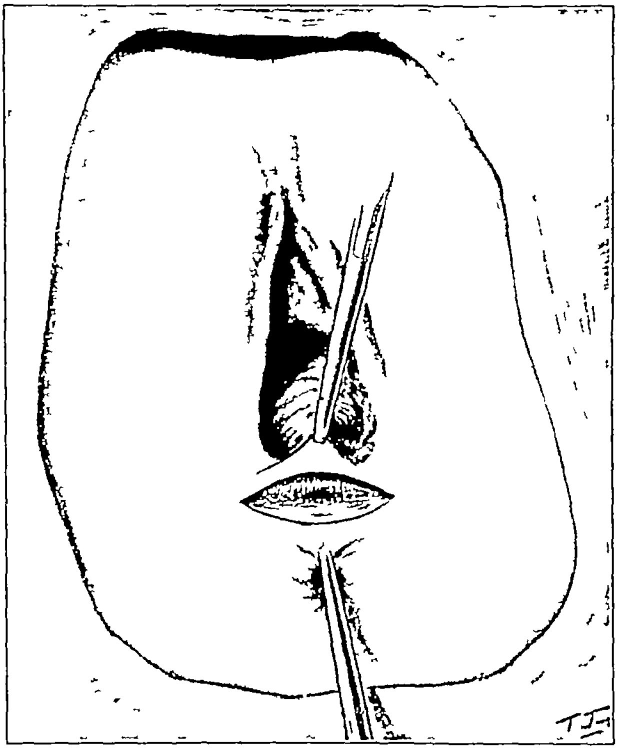

Fig. 1.—Short transverse incision made between two pairs of forceps, one placed at vaginal mucocutaneous junction, the other grasping the skin about one inch from anal margin.

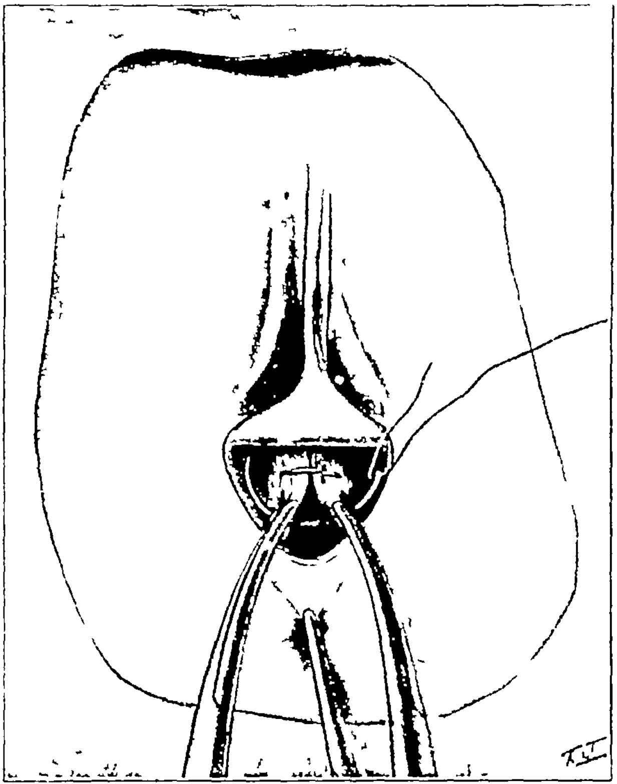

Fig. 3.—Two pairs of curved Mayo forceps grasp edges of levator ani muscles and one suture has been placed. A second stitch is being taken.

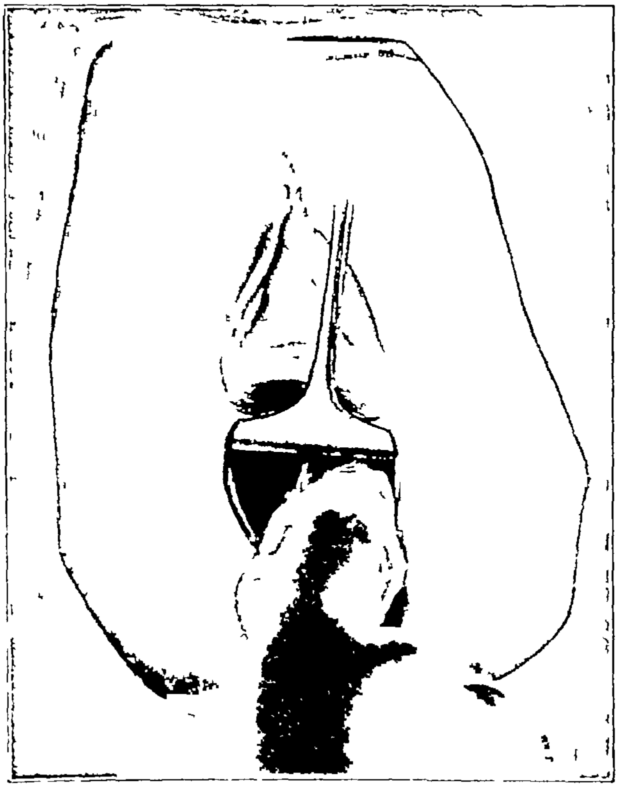

Fig. 2.—The forceps grasping upper lip of incision; the gauze-covered finger dissecting vagina from rectum.

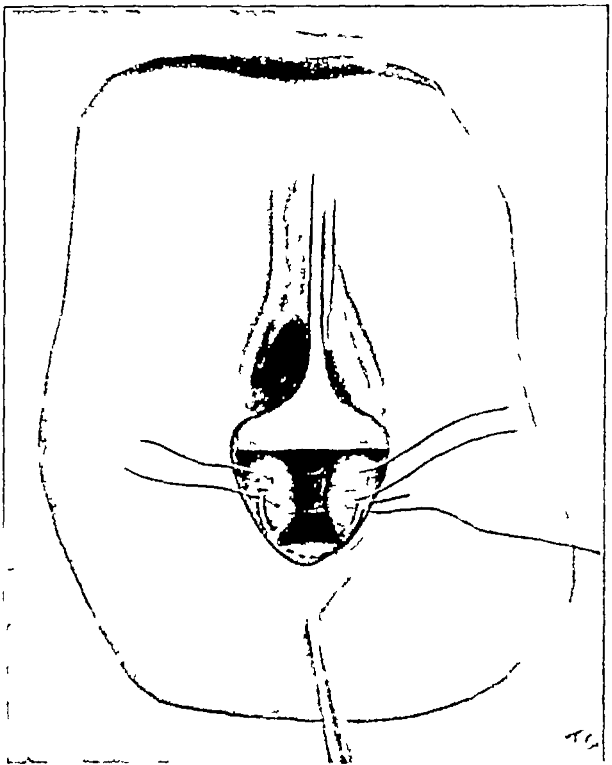

Fig. 4.—The three stitches approximate the superficial fascia and transverse perineal muscles. The upper two are in place; the third stitch also includes a small portion of the levator ani muscle.

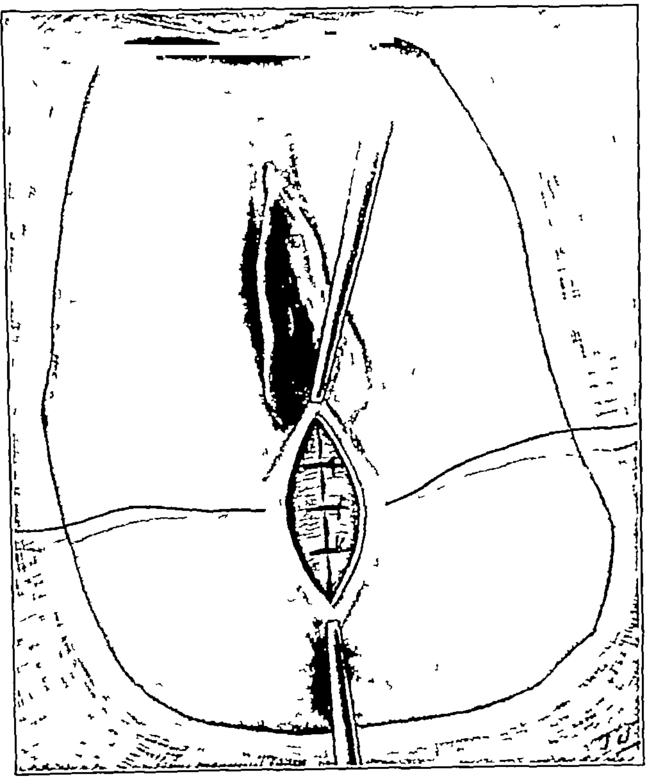

Fig 5 —Sutures shown in Figure 4 tied and a heavy silkworm gut ligature passed from one end of the initial transverse incision to the other to close dead spaces The transverse incision is transformed into a longitudinal incision.

be used in the consideration of the subject for the reason that, when ordinarily used, it means the excision of the vaginal wall and deeper structures For the same reason I dislike the use of the word "excision" when applied to the removal of scar-tissue The excision of scar-tissue results only in the formation of new scar-tissue It is true that irregular and ragged scars may be modified and rendered less irregular and less jagged by excision, still, when practiced, the union is more or less haphazard

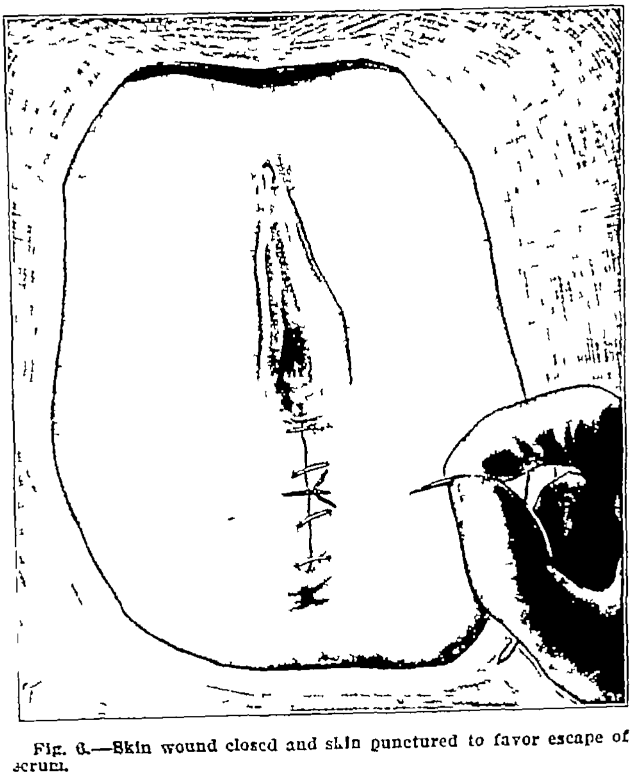

Fig. 6.—Skin wound closed and skin punctured to favor escape of serum.

Dissection, to my mind, seems to express the procedure to be adopted The limitation of this procedure should be carried out only so far as it will enable the operator to grasp and unite torn structures in a manner looking toward a restoration of function This should be carried out with the same care as a dissection, preliminary to the union of structures, in any hernia Its intent, then, is to enable the surgeon to approach the several structures and unite them in accord with their anatomic conformation and function

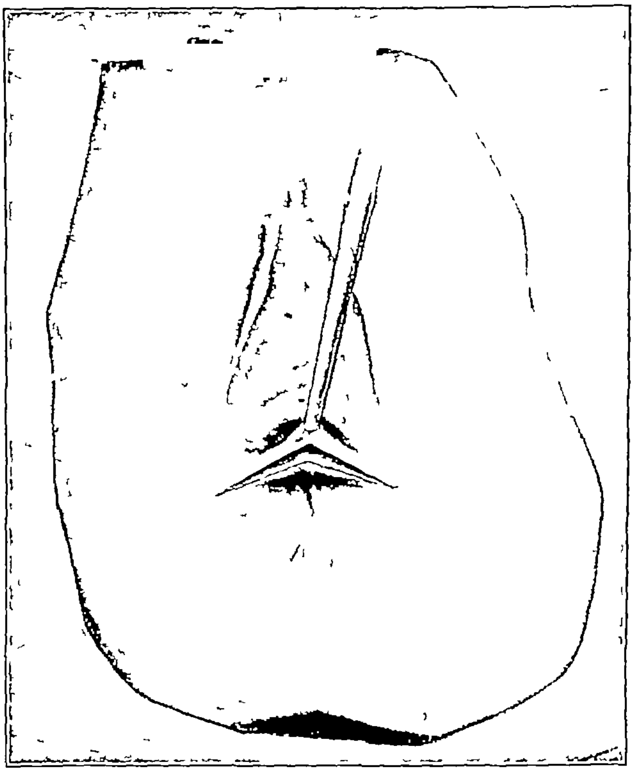

Fig 7 —Manner of making incision in complete rupture of perineum

The simple operation I here submit does not contemplate the loss of any tissue by denudation and is along anatomic lines, the initial incision is only long enough to bring into coaptation the levator ani muscle, the fascia and the transverse perinei muscles, and does not contemplate in any sense the dissection of scar-tissue It may be described in the following manner After a thorough preparation, the patient is placed in the dorsal lithotomy position The forceps is made to grasp the mucocutaneous line (Fig 1) and another forceps placed a short distance lower, when a knife is carried from left to right making a transverse incision about 1⅛ inches long The vagina is then dissected from the rectum with the index finger covered with gauze As soon as the dissection is carried up far enough, the upper forceps is removed and a small pair of T forceps is applied (Fig 2) to hold upward the superior flap The dissection is continued upward to the upper border of the bifurcation of the levator ani muscle to the point where it grasps the vagina The inner border is then caught by a curved Mayo forceps on the operator's right side, the same is done on the other side, and the two united with a No 2 chromicized catgut ligature and tied (Fig 3) Another suture is placed in the same manner one-fourth inch lower and likewise tied As soon as the forceps are removed the now united muscle slides upward and often out of sight Two sutures are all that is needed in most cases to unite the levator ani muscle No effort is made to dissect off the overlying fascia from the levator for the reason that the fascia, and not muscle, is the most important tissue in the healing of all wounds

The next step is to secure by suture the more superficial structures, which are the superficial fascia and transverse perinei muscles This is done by the application of three sutures, of which the last or most posteriorly located grasps a small portion of the sphincter ani muscle (Fig 4) The skin is then united by plain catgut, so that the wound now is one along the central raphe in direction, and has its long axis in exactly the opposite direction from its initial direction (Fig 5) At a point which corresponds to the ends of the initial transverse incision, a large perineal needle is introduced It carries a heavy silkworm-gut ligature through the deeper structures to close all dead spaces, and emerges on the corresponding opposite side Small punctures are now made in the skin contiguous to the incision, for the ready escape of serum and to avoid extravasation In theory this might be thought to be unnecessary and even ill advised but experience shows it is beneficial rather than baneful (Fig 6)

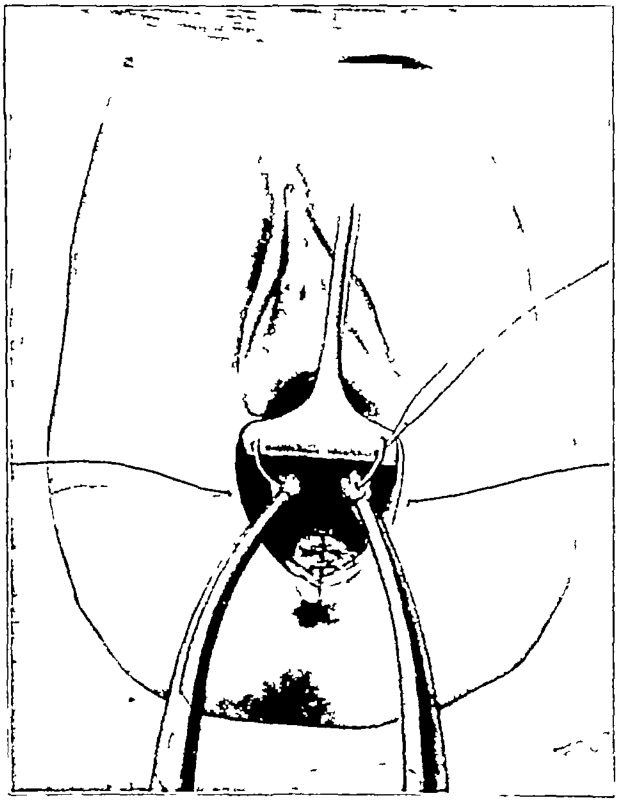

Fig 8.—Rectum sutured with catgut and first stitch taken in levator ani muscle The silkworm ligature shown in Figure 7 is also in place

The advantages of this operation are

1 No loss of tissue
2 No formation of hard scar tissue
3 No danger of soiling the wound as it is unnecessary even to touch with either finger or instrument the interior of vagina or rectum
4 The rapidity of execution
5 The union of like structures and not haphazard union of tissues unlike in structure and function
6 No effort is made even in irregular cicatrices due to irregular tears to remove them, but only to divide them at right angles, and to draw together and interpose between their upper and lower segments retracted fascia and muscle Thus is produced a more natural and better functionating perineum

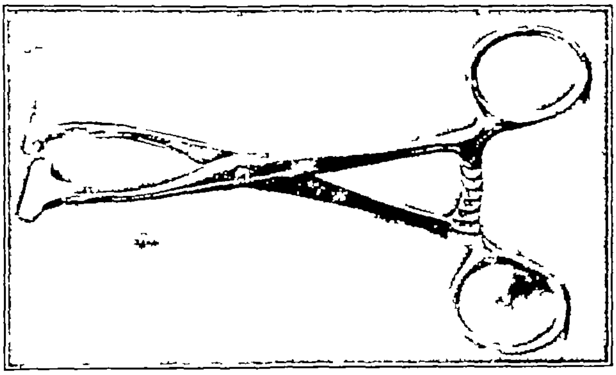

Fig 9 — T forceps used to elevate upper margin of incision

534 North Vandeventer Avenue

ABSTRACT OF DISCUSSION

Dr E J Ill Newark N J The operation suggested by Dr Dorsett is the natural outcome of what we have heard twenty five or more years ago from Tait Saenger and others They have advised the flap splitting operation There are one or two objections to the operation as practiced by Dr Dorsett It is right that we should know what has gone in the past When Jenks and Saenger first described this operation I performed it a great many times When later it was suggested to stitch up the muscle separately I did it in conjunction with this operation One result of that procedure was that in cases in which there was a large amount of vaginal mucous membrane a subinvolution of the vagina occurred We have therefore gradually come back to what Emmet described years and years ago, *and there is probably no better operation so far as I know* At the same time Dr Dorsett deserves the greatest amount of credit for again bringing this matter before us and no doubt his results have been excellent *for he has done it for a long* time A great many failures of the complete perineorrhaphy are due to the fact that sutures have been introduced into the mucosa of the rectum

Dr Charles P Noble, Philadelphia It is my judgment that the profession has been at sea on perineal injuries, owing to the fact that the anatomists are all wrong so far as the female perineum is concerned, and the reason is that the description is that of the male perineum

Dr J B DeLee Chicago I disagree with Dr Dorsett when he says that his operation is an anatomic operation and that it restores the anatomy of the parts The levator ani does not go between the vagina and the rectum It goes behind the rectum and the amount of muscular tissue between the vagina and rectum is practically negligible To prove this put a catheter in the rectum and make a vaginal examination Ask the woman to contract the levator ani and you will notice that the catheter and the finger are crowded up against the pubis and that the amount of tissue between the catheter and the finger is not more than a quarter of an inch Therefore any operation for the repair of a torn or overstretched levator ani must be done behind the rectum Such an operation is not a simple one, and probably the reasons for doing it are not sufficiently strong We get good enough results with the operation which Dr Dorsett has shown

An operation to unite the torn levator ani anatomically may be performed by making a transverse incision between the coccyx and anus, cutting the anococcygeal ligament, reflecting it forward, then by blunt dissection in the ischiorectal fossa exposing the levator ani about the region of the distribution of the fourth sacral nerve A suture placed here and on the opposite side will draw the muscle together behind the rectum and pull the rectum and anus upward toward the pubis where they belong I have done it on the cadaver and there it works beautifully

Dr A Goldspohn, Chicago This cardinal feature, of dealing with the levator ani muscle and pelvic fascia is the thing for which I have fought during the last twelve years, as will be seen in the June number of the *American Journal of Obstetrics* of 1901, and in the journal named *Medicine* several years earlier, in an article entitled in both instances "Infravaginal Intrapelvic Perineorrhaphy Without Loss of Tissue" The operation I do is substantially the same as that done by Dr Dorsett, except that I prefer, instead of catching hold of the levator ani muscle with forceps and drawing it down into the median line and then suturing it, to hook into the levator ani, after I have traced with a finger where it and the pelvic fascia lie, with a needle in a holder I can tell by the pull that I have hold of the right thing I do that on both sides and unite them I do not depend on one suture, but place two or three near each other in this the most important part of the procedure

So far as the operation for complete tear is concerned, Dr Dorsett has omitted the most important device for closing the sphincter that has been contributed in recent years, first by a German gynecologist and then by Howard Kelly, a couple of years afterward, and it has since then been practiced more generally It consists in making an inverted V shaped incision in the superficial surface of the rectovaginal septum, about half an inch above the border of the torn rectum, then carefully dissecting that down as a flap to the border of the rectum, so that you have a membranous curtain of half an inch in width covering the torn anus, and above that you unite the structures by transverse sutures which are protected from contact with the bowel lumen, which cannot be brought about in any other way

Dr. W B Dorsett, St Louis I was demonstrator of anatomy for five years and I believe I can claim a knowledge of anatomy I have dissected a great many perinei very carefully, and at the hospital where I was chief surgeon for a number of years I made a special study of this subject It may be that the anatomy of the women of St Louis is not the anatomy of the women of Chicago I did not say in the description of this operation that the levator ani muscle fibers pass around the vagina We know that the levator ani is a sling in which the vagina and the rectum hang They come together These muscle fibers run in the same direction from the coccyx upward into the ramis of the pubis They come together between the rectum and the vagina This operation contemplates the union of the split that takes place. To prove that those muscle fibers are continuous place the finger in the rupture of the perineum and you can press out that muscle very plainly The muscle fiber never tears but splits You can tell in every case just where this has occurred Simply take hold of the vagina with the index finger, pull it downward toward the rectum and you can tell on each side where the tear is by the scar

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Automobile Blaze From Headlight Lens—An unusual incident is reported from Germany A motorist stopped and opened the bonnet to attend to a leaky carbureter, when he was surprised to see it take fire He extinguished the blaze and in perplexity sought the cause The road was deserted There was no fire near or in the car, there was no broken insulation Finally he discovered that the convex lens of the headlight cover had swung around and acted as a burning glass focusing the sun's rays on the oily carbureter This incident is not mentioned as a warning, for such an occurrence is a remote possibility, but it is interesting

NEGATIVE AIR-PRESSURE IN ACCESSORY SINUS DISEASE

SIMPLE APPARATUS USED IN FRONTAL SINUS EMPYEMA, WITH REPORT OF A CASE

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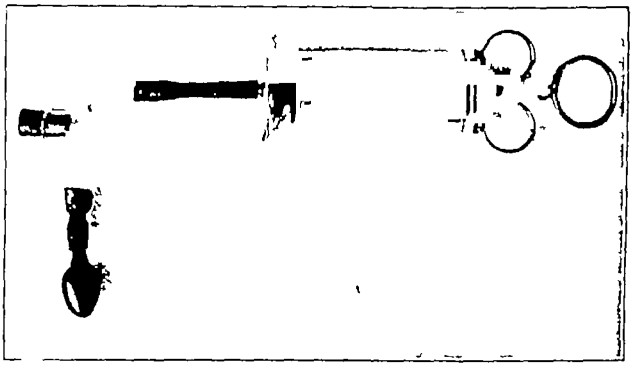
Patient—Mr J H S, aged 40, teacher, presented himself in January, 1911, complaining of severe pain in the right eye and the frontal region The history was that of nasal discharge with some obstruction to breathing for a number of years, with treatment for "catarrh" at various times Nasal examination showed pus in the right middle meatus, with polypi obstructing the infundibulum

Treatment and Course of Disease—Removal of the polypi and the anterior end of the middle turbinate gave good drainage and relief from the pain Treatment by applications of contracting solutions followed by argyrol was carried out over a period of several weeks but a slight mucopurulent discharge persisted Attempts to enter the sinus for purposes of irrigation were not successful The summer of 1911 was passed with no nasal treatment and with a slight amount of discomfort only, though a small quantity of nasal discharge was present In December, 1911, an acute inflammation involving the whole upper respiratory tract caused an exacerbation of the old sinus trouble, with return of violent frontal headache and pain in the eye The acute symptoms were relieved by treatment along the lines formerly employed, but a profuse purulent discharge was unchecked and there was occasional headache No improvement was apparent after several weeks and more radical surgical measures were under consideration when treatment by negative air pressure was instituted Daily applications of the apparatus were made, and improvement was apparent from the first The first few days there was sucked down considerable thick foul smelling pus, but following this the character of the secretion changed and became thin and scanty, until after three weeks the patient considered himself well and passed from observation



Apparatus for negative air pressure in accessory sinus disease

The outfit as used consists of the glass reservoir of a Smith ear suction apparatus, fitted by rubber tubing at one end with a large nasal piece, and at the other with an ordinary ear syringe The technic of operation is simple while the patient holds the nasal piece in the nostril he shuts off the entrance of air into the opposite nostril by his thumb and forefinger, at the same time holding his breath, thus elevating the soft palate Suction made at this time tends to produce a vacuum and the palate is forcibly held up, respiration proceeding through the mouth When the suction has been applied as long as is desired air is again allowed to enter the nostrils This procedure is repeated a number of times during each sitting

Treatment of accessory sinus disease by negative air-pressure had its inception in the Bier treatment by hyperemia of inflammations in other parts of the body It was probably first used by Sonderman,[1] though Muck, Spiess, Brawley, Dabney, Pynchon and others have devised apparatus for its application That its use has not been general is evidenced by the fact that it is not given as a method of treatment in all of the newer works on rhinology Phillips,[2] in his recent book, makes no mention of it E R Lewis,[3] in an enthusiastic report of a series of cases treated by this method, directed attention to the difference in the types of hyperemia of Bier, that brought about by constricting bands being in the passive form, with transudation or leakage of serum from the blood-vessels, while that brought about by suction — negative air-pressure — is active with increased cellular activity of the part

Ballenger, in his latest work,[4] advises the use of negative air-pressure, tentatively, in sinus disease, and states that "the rationale of the method consists chiefly in the increased hyperemia of the mucous membrane lining the cells The local nutrition is thereby improved, the cell resistance and leukocytosis increased and the infectious process checked " In addition suction cleanses the sinus of retained secretions, and probably does this as effectually as can be done by irrigation, and it must be borne in mind that a considerable proportion of sinuses cannot be entered for irrigation through their normal openings

That the method deserves more consideration than it has received seems certain Its use is painless, and devoid of danger of infecting sinuses not already involved, as is possible in treatment by irrigation It is my contention, therefore, that it should receive a trial, in conjunction with appropriate intranasal surgery — for obstructions to drainage must be removed — in such cases as offer a chance of cure by the intranasal route

Frontal sinus disease would seem to offer better hope of success than disease of the antrum, because of the location of natural drainage in the frontal sinus at its most dependent part

Negative air-pressure as a cure all in sinus disease no one advocates That it should be tried tentatively, in selected cases, before advising radical external operations, seems justified both by reason and by performance This trial it seems not generally to have received

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COMPLICATIONS IN TABES DORSALIS *

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The complications of tabes are both numerous and varied They may involve any of the viscera the nervous system, or the circulatory apparatus, they may extend into the province of the surgeon or the orthopedist Many organic diseases, as well as many mental conditions, may occur in conjunction with tabes. These facts will seem neither unusual nor strange if one reflects that tabes extends over a long period of time, during the greater part of which it is progressive Another and more potent reason still is the fact that tabes is specific in etiology The complications of tabes numerous and varied as they are, are yet, preeminently, the complications of syphilis

The most extensive and all-embracing group of complications are the crises Of all these the one most frequently encountered is the crisis of pain It occurs in 88 per cent of the cases It may involve trunk, limbs or viscera It may be of rare or frequent occurrence, of long or short duration

TREATMENT OF CRISES

The treatment is first the application of local measures, such as plunging the leg into hot water, painting with iodin, bandaging, mustard, chloroform liniment, faradization, and ironing with a hot iron, next the administration of the simpler drugs such as aspirin, pyramidon, salipyrin and codein The cautery will often prove of great value in those attacks of pain involving the trunk

The tabetic, subject to the crises of pain, should be instructed in the use of simple applications and simple remedies He should be in a position to find these remedies and at a moment's notice marshal them to his aid He should persist in trying first one and then another, it is a curious but none the less undeniable fact that what serves as a relief to one attack fails utterly in the next, and vice versa If the pains still persist or, as they often do, tend to get worse, the patient should go to bed A tabetic in a crisis of pain needs rest To allow him to move about restlessly only invites demoralization and wastes energy The last resort is the hypodermic of morphin If all else has failed, it is warranted and indicated It is, however, warranted and indicated only with this proviso—that it be administered by the physician

The gastric is the next most common crisis The treatment of the gastric crisis requires more thought, more skill and more common sense The most serviceible drugs are cerium oxalate in 5 grain doses every half hour, minute doses of strychnin, antipyrin and bicarbonate of soda Methylene-blue in 1-grain capsules has been suggested Nitrate of sodium has been advised Oppenheim speaks of injections of cocain into the epidural and subarachnoid spaces of the spinal canal Levy and Pope have added to these alcohol and stovain The different alkaloids of opium can be tried as dionin and codein Vallas Cotte has suggested stretching the solar plexus These latter methods are, however, far too radical Again the last resort is the hypodermic of morphin—to be administered by the physician only There is a point in the management of the gastric crisis which deserves a little more consideration than is usually accorded to it I refer to the intercurrent treatment These patients should be treated not only during the attacks but also between the attacks Here the object should be to increase the nutrition and to add to the general resistance Every effort should be made to improve the digestion, to induce the patient to eat fat producing foods and in every way to prepare him for the next attack In this way a gastric crisis, when it comes, will do a minimum amount of damage and leave behind as little destruction and wreckage as is possible In the management of all crises in tabes, three great factors should never be lost sight [illegible] rest, super-

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1 Sonderman München med. Wchnschr., Jan 3 1905 p 17
2 Phillips Wendell Diseases of Ear Nose and Throat
3. Lewis E R Arch Otol 1905 xxxvii, 471
4 Ballenger W L Diseases of Nose Throat and Ear
* Read in the Section on Nervous and Mental Diseases of the American Medical Association at the Sixty Third Annual Session held at Atlantic City June 1912

vision and nutrition. An old maxim but a good one is that a tabetic who is losing weight is losing ground.

Among the surgical measures essayed for the relief of the gastric crises are the operations of gastro-enterostomy, of stretching the solar plexus, and the one known as Forster's operation. The two former have few followers, and can be dismissed from further consideration. The latter consists of a resection of the posterior spinal nerve roots. Thomas and Nichols reported a case two years ago in which the result had proved satisfactory. Rangi of Vienna has recently reported eleven cases in each of which he divided three or four roots. Five of the patients were helped, in five there was no change. There were no deaths. At the April meeting of the German Surgical Society in Berlin, in speaking of the operation, Forster himself reported that there had been 119 known cases in which, as he said, only thirteen had been followed by death.

The operation is a serious one, the contra-indications are thickened arteries and cardiac complications, the proportion of deaths, according to Forster himself, is over 10 per cent. The results have not been all that could be expected. I have had no experience with this operation, but it seems to me that the tabetic is hardly a fit subject for major surgery. It should be kept as a last resort, and then tried only in the most obstinate and serious cases, with the full comprehension of the dangers and the sometimes vain results. Under such circumstances it may be indicated.

VARIOUS COMPLICATIONS

The vesical complications of tabes are those which may be divided into varying degrees of retention and varying degrees of incontinence. The essential point in their treatment, as Squier says, is attention to detail. Any possible source of peripheral irritation must be investigated. Chronic congestion of the prostate and deep urethra must be treated. A congenital tight meatus should receive attention and an old stricture be dilated. A cold sound will often relieve painful spasm of the bladder, if cystitis has already developed, resort must be had to hexamethylenamin and bladder washings. The catheter should be kept away from the tabetic as long as possible. If at last it has to be used the most careful surgical antisepsis must be followed. The hypodermic needle and the catheter are two instruments which every sufferer from tabes should be kept in ignorance of for as long a time as possible.

The importance of the urinary complications can best be illustrated by the fact that they occur in some form in 90 per cent of the cases of tabes, in 70 per cent there is residual urine, and almost one-half of the patients suffer from cystitis. Extending up from the bladder there may follow a host of complications involving the ureter, the pelvis of the kidney and the kidney itself. These complications are not only common but are also extremely serious, Gowers, in speaking of the kidney complications, says that "they are the most common, they develop insidiously and manifest themselves only when life is in peril." There has always been a feeling in my mind that in tabes not sufficient attention is given to the care of the urinary tract. In tabes the reaction of the urine is of far more importance than the reaction of the Wassermann test.

Among the unusual complications which appear in tabes are the so-called spontaneous fractures. These, more common in women than in men, generally occur in the long bones and during the ataxic stage of the disease. This is partly due to the fact that these bones are more exposed and more liable to be the seat of injury. Trauma a dangerous occurrence in tabes, may serve as the starting-point of one of these fractures, of a perforating ulcer, or of an arthropathy. These fractures may result from a muscular strain, as the joints are unduly lax, or from certain pathologic changes which may have occurred in the neighboring joints, rendering the bones unduly sensitive and brittle. These spontaneous fractures generally occur in those long bones which are adjacent to diseased joints. In tabes, therefore, a pathologic joint suggests a pathologic extremity.

These joint conditions are more usual than even the fractures. The cardinal clinical features are the sudden and enormous swelling with neither pain nor tenderness, the rapid progress, and the chronic course. They may vary anywhere from a simple effusion to the classic Charcot joint. The latter occurs in two forms, either the atrophic or the hypertrophic. In the former there is an acute disorganization with an erosion of the cartilages and a wasting of the bony surfaces, while in the latter there is an enlargement of the bony ends and a thickening of the ligaments. In both there is an effusion. The atrophic variety is most apt to be seen in the hip and shoulders, the hypertrophic in the knee and elbow. Any of the joints may be involved, most frequently, however, the larger ones. Gowers and Taylor give the proportions as knee forty-five, hip twenty, shoulder eleven, tarsus eight, elbow five, and ankle four. The jaw and spine rarely may be affected. These joint conditions do not respond well to treatment. The simple effusion tends to absorb, later on, however, it is apt to reappear in a more lasting and virulent type. The tendency of most of the Charcot joints is to go on to a considerable and permanent deformity. Church describes the condition very well when he says that "old tabetic joints present merely a bag of bony fragments."

For the treatment of these conditions many measures have been tried. Counter irritation, puncture and mechanical appliances all have their advocates. The best remedies are rest and mechanical appliances. The one important point to bear in mind is that the earlier the affected joint is relieved from use and pressure the more lasting and more satisfactory will be the results.

It may not be out of place here to speak of a scoliosis occurring in the vertebral column. Certain cases have been reported in which such a scoliosis has been found in the neighborhood of the lumbar vertebræ. From this the deduction has been made that in certain cases such an arthropathy might through mechanical means and pressure give rise either to girdle pains or to pains lower down.

The diagnosis of these vertebral arthropathies is difficult — almost impossible — to make. It has therefore been suggested that in every case of tabes in which there is suffering from attacks of pain there should be taken an x-ray picture of the vertebral column. I simply mention this for what it is worth.

A curious complication, and one which is frequently passed over, is the perversion of function of the sympathetic system. The tabetic is peculiarly liable to coldness of the extremities and capillary stasis, even going on to the extent of a mild degree of erythromelalgia. Cases have been reported in which the whole body shows a degree of cadaveric lividity. These patients easily get warm when covered in bed and respond too readily and too rapidly to the hot bath.

Many other minor complications affect the extremities and joints, such as rupture of the Achilles tendon and perforating ulcer of the foot Floating kidney along with tabes has been reported Its occurrence may be accounted for by the laxness of the ligaments Several skin conditions are known to complicate tabes, especially those that are herpetic in character Glycosuria and diabetes should be mentioned as occasional complications

Among the complications are many organic conditions Those which may easily be overlooked, but which may have considerable bearing on the immediate future, are the circulatory complications

Inasmuch as tabes is derived from a specific origin, it is to be expected that the other results of syphilis will accompany it An insufficiency of the aortic valves an aneurysm or a general endarteritis is the usual circulatory complication The heart condition sometimes simply shows an unusual rapidity These cardiac complications, to my mind, are simply the expected complications which one would be on the lookout for in any specific condition

To the psychiatrist tabes is interesting The mental complications are numerous and varied Meyer has reported the undoubted occurrence of paranoia, of circular insanity, of manic conditions, of simple primary dementia and of dementia præcox in the course of tabes Starr has spoken of a tabetic who became quite maniacal, only to recover There can be no question that any of the acute psychoses may occur wholly independent of either the tabes or the specific origin of the tabes In all of Meyer's cases there was a total absence of any of the cardinal signs which go to distinguish general paresis There may also be a condition resulting from an active syphilitic exudation, which, by the clinical symptoms of optimism and carelessness, is suggestive of general paresis and yet, quite unlike paresis, yields to mercury and iodid

General paresis itself may complicate tabes The two conditions are so similar in origin and in symptoms that it is not an unusual condition to encounter cases which seem at one time to resemble the one and at another the other It is impossible in these cases to differentiate, it is wisest to defer judgment until the complete picture is presented and then to balance the physical with the mental symptoms Even the average tabetic, who is having, so far as the mental symptoms are concerned, an uncomplicated and simple course to his disease, is generally admitted to be not quite normal mentally He is emotional, easily influenced and subject to any and every force with which he comes in contact He is apt to be optimistic and, fortunately to look on the steady onward march of his condition with comparative freedom from anxiety He is unusually susceptible

It is fairer then, to assume at the outset that the tabetic is not a normal individual Kraepelin says that we have a right to assume a psychosis peculiar to tabes On this point he says The distinguishing feature of the tabetic psychosis appears to be an acute hallucinatory excitement, which presents a marked resemblance to the hallucinatory insanity of the alcoholic ' The argument which some will make that these cases are not cases of tabes but are incipient cases of general paresis is not a valid one The autopsy will show distinct lesions of tabes while the clinical signs such as defective memory defective speech or handwriting, will be absent There will be no facial tremor If there should still exist doubt, an examination of the cerebrospinal fluid should be made

A rarely mentioned but by no means unusual complication is morphinism It is most apt to occur in cases of long standing and in patients who have been victims of some of the crises It has the usual tendency to destroy the higher powers and to render the patient selfish and difficult to live with It is especially apt to be found in patients in homes for the incurable and in almshouses Morphin, while it alleviates the sufferings of the crises, yet adds to its miseries Except in extreme cases it is to be avoided in tabes as much as, if not more than, in any other disease

Of greater interest to the neurologist are the complications with the organic nervous diseases such as paralysis agitans, acute myelitis, lateral sclerosis general paresis, exophthalmic goiter, hemiplegia and progressive muscular atrophy

The complication of hemiplegia with tabes is more constant than is generally believed This is partly due to the fact that the hemiplegia may be transitory or permanent, functional or organic The mere recognition of the fact that the vast majority of cases of tabes are syphilitic in origin at once suggests the possibility of the occurrence of a transient syphilitic hemiplegia, the acknowledgment of the fact that tabes is a chronic disease and that its sufferers are prone to exhibit a certain psychic degeneration suggests the possibility of the occurrence of a functional paralysis and finally the very fact that the tabetic is a sufferer from endarteritis suggests the occurrence of hemorrhage and thrombosis, resulting in a hemiplegia

A rare combination is that of tabes and progressive muscular atrophy By this I do not mean the ordinary atrophy which is found in many tabetics Statistics go to show that from 15 to 20 per cent of all cases of locomotor ataxia give evidence of some degree of atrophy This atrophy is known as tabetic atrophy and differs in many respects from the atrophy which is characteristic of the disease known as progressive muscular atrophy Dr Collins describes the tabetic atrophy very aptly when he says "The clinical characteristic features are (1) slow progression (2) absence of fibrillary twitchings and (3) absence of reaction of degeneration " To this description Gowers adds yet a fourth point—the occurrence of the atrophy in the muscles of the tongue

Apart from this tabetic atrophy there do occur cases in which along with the tabes there are to be found the cardinal signs of a progressive muscular atrophy—the presence of fibrillary twitchings a diminished reaction to both faradism and galvanism and a distribution to the upper rather than the lower extremities The number of such cases reported is small, it does not exceed ten or fifteen therefore I feel justified here in mentioning a case of this type which we had under observation for a number of years at the Vanderbilt Clinic

CASE REPORT

The patient aged 44 married, and the father of thirteen children was by occupation a piano tuner and maker In childhood he suffered from measles, scarlet fever and diphtheria later on from pneumonia and a light attack of blood poisoning The question of a specific lesion is not absolutely definite but it is more than probable that at the age of 28 he did contract syphilis The illness for which he came to us dated back about six years He had been exposed to very cold and very stormy weather following which he [illegible] slept in a [illegible] heat Immediately [illegible] that [illegible] control in his left foot Then he began to complain of great muscular weakness in the neck, back and arms, the fingers were numb, and he had great difficulty in using his hands for the fine motions The patient was poorly nourished and markedly emaciated There was some wasting of the muscles of the right hand and of the right shoulder The scapulæ were winged The neck muscles were atrophied, so that the head hung well forward. There was a considerable degree of atrophy of the left hand and arm Fibrillary twitchings were present over the whole body, but especially in the legs There was wasting of muscles of the interossei of both hands, the right hypothenar eminence was wasted, and the face showed atrophy The electric examination displayed a diminished reaction to both faradism and galvanism In addition to these symptoms of atrophy the patient had Argyll Robertson pupils, lost knee jerks, the Romberg sign and ataxia in all extremities He had difficulty in passing urine As far as his mental symptoms were concerned, he was perfectly clear and quite cognizant of his condition

Here then was a patient who displayed four of the cardinal signs of tabes dorsalis, and at the same time displayed an atrophy which cannot be classed as being one of the simple tabetic atrophies, but rather an atrophy characteristic of progressive muscular atrophy Another feature of this patient's condition was that the wasting involved not the legs but the arms, and that it had steadily progressed from the interossei of the hands to the scapular muscles and the face

In tabes the occurrence of optic nerve atrophy is so common as to deserve mention It occurs in 5 per cent of the cases It is more apt to complicate those cases in which there is already an affection of the eye muscle, it is also a by no means unusual way for the disease to make its first manifestation A curious but interesting fact in regard to optic nerve atrophy is that it rarely occurs in the ataxic cases It is true that blind tabetics walk fairly well while ataxic tabetics are those who can see There is no remedy for the atrophy and it is generally progressive

I have still left many complications unmentioned, there are those involving the muscles of the eye, there are those involving the cranial nerve, there are the minor digestive disturbances and there are the rectal, the laryngeal and the intestinal crises It would be quite impossible in a paper of this length and limitations to treat of all My object has been to consider some of the most important, some of the rarest and some of the most interesting

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ABSTRACT OF DISCUSSION

Dr. L. Harrison Mettler, Chicago Dr Hunt has referred to various conditions as complications of tabes dorsalis, and correctly so according to the older conceptions of this disease But what is tabes dorsalis but a late form of syphilis with certain prominent localization symptoms? It seems to be the last stage of syphilis Call it metasyphilis or parasyphilis for clinical purposes, if you like, the fact remains that it is a product of syphilitic infection It is syphilis that is the disease under discussion and the spinal and cerebral dominance of the clinical manifestations represent merely a stage and localization of this disease process The complications mentioned by Dr Hunt are syphilitic manifestations

If the emphasis is to be laid on syphilis as the essential disease it may be difficult at times to determine whether the so called complications are really complications of tabes or whether tabes is a complication of these The question is an important one from the pathologic and therapeutic points of view It suggests the advancement that neurology is making toward a broader and more scientific conception of disease than that which formerly used mere clinical syndromes and called them diseases, as witness Ménière's disease, Landry's paralysis, and the whole gamut of the headaches Mere symptomatic medicine is giving way to the more scientific physiopathologic conception of disease

Lately, we have seen this advance strikingly illustrated in connection with acute anterior poliomyelitis Up to the present, a more prominent group of clinical localization signs has established our general conception of the disease We recognize that the pathogenetic process is something far more extensive than a lesion of the anterior horns of the spinal cord. The disease is a particular variety of generalized infection with possible lesions in all parts of the nervous system, as well as in other organs of the body Acute anterior poliomyelitis is but a phase and a localization of the disease in certain individuals and is therefore not a disease but a mere clinical syndrome When we shall have discovered the specific germ that gives rise to this form of infantile palsy and named it, we shall, as we have already done with regard to syphilis, tuberculosis, and other specific forms of infection, name the disease after the infection, and cease calling its mere local manifestations disease entities One is no more justified in speaking of tabes dorsalis and general paresis as distinct and separate diseases than one would be in speaking of tuberculosis of the hip joint and tuberculosis of the lungs as separate and distinct diseases

Dr Charles K Mills, Philadelphia From my limited experience with crises, especially the gastric crises, I have no doubt that in specially chosen cases the cutting of the posterior roots is one of the most efficient and relatively permanent methods of getting relief In Philadelphia we do not think that, even in a tabetic, unless the case is greatly advanced, unilateral laminectomy or even a complete laminectomy is a dangerous procedure I think Dr Hunt's statement that tabes occurs in different forms of mental disease should have been turned the other way Tabes occurs not infrequently in those who are potentially the victims of, or are liable by predisposition to, forms of mental disease, and I can see no reason why a dementia præcox patient or a patient with primary dementia in later years, or one with paranoia or one even with a tendency to or history of manic depressive insanity may not under the impetus of acquired syphilis have general paralysis Interesting cases of this kind are seen, and, indeed, the hereditary predisposition to the other form of disease in some cases decreases the resistance in such a way as to lead to metasyphilitic disease An interesting historical instance of general paresis occurring in paranoia was, in my judgment (and it was the judgment of a few others), that of Guiteau It is of importance for us to be able to group different phenomena of the same etiology It is a scientific convenience to do this Tabes and general paresis are perhaps closely allied, if not identical diseases in their pathology, except for the differences in the site of the lesions, but these diseases are not myelitis, encephalitis or meningitis of syphilitic origin Each of the latter gives a more or less independent clinical entity

Our friends, the Freudians, seem also desirous to have us abolish the term "diseases" and substitute "complexes" What does it matter? The complexes are simply groupings of psychic or neuropsychic phenomena Groupings of phenomena constitute diseases in one of the accepted usages of the designation

Dr. C R. Ball, St Paul, Minn It seems to me that, if we are to regard tabes as a parasyphilitic disease, Dr Hunt has failed to mention one of the most important complications, that is, syphilis itself, syphilis may and often does complicate tabes, either as a meningitic, gummatous or arteritic process This, no doubt, helps to explain the somewhat irregular successes which one obtains sometimes in tabes with antisyphilitic treatment It may help to explain also some of the mental conditions which Dr Hunt mentions in his paper I have found salvarsan extremely valuable in two cases in the treatment of shooting pains In one case, in particular, in which the pain was hard to relieve and resisted the customary remedies, an intravenous injection of a full dose of salvarsan stopped the pain. I have found it quite effective, if there is considerable pus formation in the bladder and cystitis, to use the combined staphylococcus vaccine or the staphylococcus and colon bacillus combined. In several cases the cystitis has improved greatly under this vaccine therapy.

DR. A. L. SKOOG, Kansas City, Mo. In the last few years there has been a vast amount of work done in respect to the study of the cerebrospinal fluid. I believe that in nearly all cases of tabes, especially in the earlier stages, a lumbar puncture should be performed. While the majority of the cases in which I perform lumbar puncture have not resulted in any relief from any of the symptoms or from the progress of the disease, yet there have been a few cases in which benefit has been derived from it. A real estate man, aged 56, formerly a locomotive engineer, who denied ever having had specific disease, consulted me especially for severe pains which had been diagnosed as rheumatism by several physicians. The patient had been unable to perform any labor for a period of about two years. His disease had been present for about five years, as far as he knew. He had numerous severe typical crises, and had never received any marked benefit from treatment. He also had a number of classical symptoms of tabes which I will not mention. I performed a lumbar puncture, as I stated to him frankly, largely for diagnostic purposes. I found that the cerebrospinal fluid was under much pressure, and withdrew about 50 c.c. The patient experienced almost immediate relief from his pains, and continued improved for a period of three weeks, improved in his physical condition and gained in weight, having been quite emaciated. He returned to me for another lumbar puncture, because of the relief experienced as the result of the first puncture. A second one was performed during the third week, and again he received marked relief. I again withdrew a large amount of fluid. In brief, I performed five lumbar punctures in the course of two years, since the case has been under my observation, and each time the period of freedom from pain has been longer. It is now about five or six months since the last puncture was performed, and the patient is able to do some light work. He has marked tabetic symptoms, but his reflexes have improved, and there is a slight improvement in the paralysis.

DR. TOM A. WILLIAMS, Washington, D. C. Before adhering to the classical doctrine that the tabes is essentially different from syphilis, we have to take into account certain considerations as to the establishment of immunity in an individual, and certain considerations concerning the accessibility of syphilitic lesions to remedies, which are set forth by Nichols of the Army and are available to everybody.

In the second place, the constancy of lymphocytosis in tabes is a circumstance against which strong argument must be brought before one denies that the process of tabes is a specific meningitis, and that dorsal tabes is not merely a secondary effect of a luetic radiculitis extending from this, because of the anatomic structure of the spinal roots and their meningeal envelopes.

There may be a degree of central irritation which, though insufficient in itself to cause lightning pains of crises, is capable, when augmented by peripheral excitations, of giving rise to the phenomena which we know as crises. In those cases the removal of peripheral irritation will remove the symptom temporarily. A concrete illustration is a case I saw recently. The patient had been seen by Osler and many eastern neurologists without benefit. The last neurologist in New York gave salvarsan, but the pains grew much worse. It was one of the benign slow cases of tabes. There was a history of syphilis thirty years ago, lightning pains sixteen years ago, no bladder symptoms, loss of knee-jerks and ankle-jerks, no ataxia, Wassermann test positive. Instead of deep pain sensibility being absent, it was vastly increased. I argued, therefore, that there was definite irritation of the nerve, that we might by eliminating other irritants, without attacking the syphilis which was at the origin of the trouble, relieve the patient, and it proved to be so. I discovered a factor in the case which had not been taken into therapeutic consideration. The patient had been in the habit of taking three drinks a day and five cigars a day all his life. My theory was that the added peripheral irritation from the toxins of these was sufficient to cause the lightning pains. By diminishing the peripheral irritation I thought I could decrease the lightning pains. I began a process of elimination by baths and diet and cut down the alcohol and tobacco, whereupon the pains disappeared, and the man is comparatively well. Hence, even though peripheral measures themselves when applied to the limbs may not interfere with the lightning pains of tabes, yet one must consider other factors than the causal syphilis in planning treatment.

DR. ALBERT E. STERNE, Indianapolis. It is not very remarkable that we should find complicating conditions in a constitutional disease like tabes. We are entirely too prone to limit our conception of the entity of tabes to the nervous system, and that holds similarly true for paresis. Neither the one nor the other is a disease confined to the nervous system, either central or peripheral. The pathology of paresis and the pathology of tabes extend beyond the confines of the central and peripheral nervous systems. We find pathologic changes in many regions of the body outside of the nervous system. Therefore, it is not astonishing that now and again we should find real complicating conditions arising from those organs which are themselves involved. We should look on tabes and paresis as being closely allied as constitutional diseases, and not as diseases merely of the nervous system.

Dr. Hunt alludes to arthropathies and spontaneous fractures as being peculiar to the ataxic stage. My experience in my own research, especially between 1890 and 1892 in the examination of the records at the hospitals of Berlin, shows the arthropathies in the preataxic stage rather than in the ataxic stage, and, moreover, that the arthropathies are in their incidence actually intracapsular fractures. The most trivial exterior traumatisms serve to provoke such fractures. You will some of you recall the case of Madame Corteret, who on being lifted from bed broke her right femur and, then, while she was being put back to bed the left was fractured. This brittleness of bone is characteristic in tabes, running as high as 10 per cent. perhaps, or at any rate, appreciably high. Neither the arthropathies, the perforating ulcers, nor the various crises are complications. They are essentially tabetic.

I believe the greatest commendation should be given to Dr. Hunt for the reason that he has strongly emphasized the dangers of the hypodermic needle. Physicians are naturally too prone to allow the control of the situation in chronic disease, whether of this type or any other, to get out of their hands, and this they have no right to do, where morphin and other opiates are used.

DR. HUGH T. PATRICK, Chicago. In the therapeutics of the pains of crises or crises of pain, I think I have used one or two things that Dr. Hunt did not mention as he was going through the category. One of these is exceedingly simple and sometimes exceedingly effective, namely, very large and very hot colonic flushings, in the knee-chest position, coincident with rest in bed. I think any crises should be treated first and foremost by rest in bed.

Another thing which is undoubtedly effective in some of the crises of pain is injections of sodium cacodylate into the spinal canal. Many of the members may not know of it. Dr. Heym of Chicago, first proposed it. I cannot follow Dr. Heym in his various theoretical consideration, but the injection of sodium cacodylate into the spinal canal is very helpful in some cases. One manifestation of tabes which may be considered a complication is the acute exacerbation. In the books we read about acute tabes. I think in the vast majority of cases these are instances of acute exacerbation. In these acute exacerbations generally there is well marked weakness in the legs. Since spinal puncture has become common I have found coincident with the exacerbations an increase in the ly[illegible]is [illegible] this condition together with rest in bed w[illegible]ential, I [illegible] neural treatme

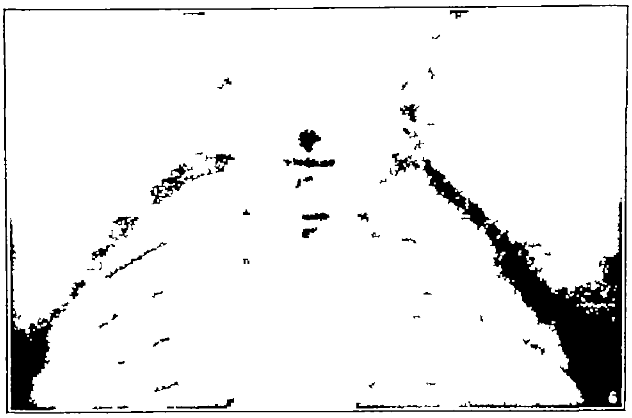
CONGENITAL ABSENCE OF BOTH CLAVICLES

Max Reichmann, M D, Chicago

Among the congenital defects the absence of both clavicles is one of the rarest findings In the available literature, I could find only twenty two cases recorded in a paper by Hultkranz[1] According to this author, usually both clavicles are found missing (in only three cases was the defect found to be one sided) and Hultkranz also states that except in two cases the defect was incomplete

Through the kindness of Dr C R Forrester, I am able to add another case to the two of complete absence of both clavicles

The patient, W M, aged 32 merchant, is of a normally developed family His father died from an affection of the heart, his mother and one sister are living and, as far as his knowledge goes, do not show any abnormalities in the development of their skeleton The patient is of small size with well developed muscles Neither clavicle can be palpated, in the place of the clavicles, however, one can feel a strong cord The two shoulders can easily be brought together in the midline of the body The roentgenologic examination shows a complete absence of both clavicles, the palpable cord must therefore be of fibrous nature Hultkranz emphasizes the fact that the sternal portion of the bone in these cases is always developed as a rudimentary clavicle having one third or one half of the length of the normal bone, while such a rudimentary development of the acromial part is an extremely rare occurrence My plate, however, did not show any evidence of such rudimentary development The quite frequent malformation of the skull which Hultkranz found in thirteen of the twenty two cases mentioned was also absent in the man examined by me The coincidence of this malformation with absence of the clavicle is explained by the fact that the ossification of the skull and the clavicle sets in at the same time (second month)



Radiograph showing complete absence of both clavicles.

1606 Mallers Building

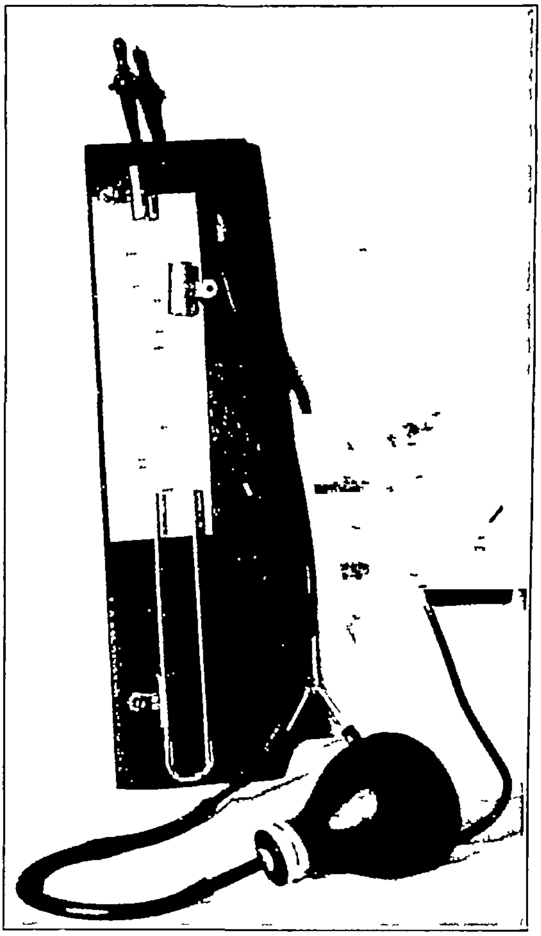
A NEW SPHYGMOMANOMETER

Edward J Brown, M D, Minneapolis

"A new sphygmomanometer" is getting to be almost as much of a joke as a new tonsil knife or forceps, either of which latter generally means that the man behind the gun is not equal to the instruments previously in use There is nothing new about the mercury manometer, it is simple enough and so are the others whether depending on a column of mercury and compressed air or water and air or a long column of water in a rubber tube provided they are standardized by comparison with the mercury column The U tube mercury manometer is better than the straight tube, chiefly because the instrument may be shorter and less cumbersome and also because it is easier to determine the difference of the height in the two arms of the U tube than in the straight tube and the reservoir Probably, however, the personal elements which attach to the observer are far greater sources of error than those inherent in any kind of manometer

After using for some time one of those water bag manometers which require either a very high ceiling or a liberty pole, I did a little experimenting with glass tubing As a result, I became convinced that any man with even a minimum of mechanical skill might provide himself with a satisfactory and reliable instrument at small expense

Three feet each of glass and rubber tubing, a piece of board and a few double pointed tacks are sufficient for the construction of an entirely reliable and satisfactory manometer, altogether costing less than one dollar, the mercury included. An inexpensive cuff and a Politzer bag complete the outfit for office use. If the physician cannot bend the glass tubing his druggist will do it for him in half a minute The only new thing about my instrument is the escape valve and perhaps a thousand men have invented it before me. Tie off tightly one end of a soft rubber tube of smaller caliber than the rest of the tubing and 2 or more inches long, and insert a piece of hard rubber tubing 2 or 3 inches long into the other end Cut a short longitudinal slit in this tube which will admit of the air being freely pumped through from the inside and place this tube inside the larger tube, it will give a very satisfactory release valve, better than the screw valves, since it is automatic, and if it plays out a new one can be made in five minutes This valve, with the use of the Politzer bag, affords a method of inflation much superior to the jerky muscular action involved in the use of the double



A new sphygmomanometer

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[1] Hultkranz J Wilhelm Ueber kongenitalen Schlüsselbeindefect und damit verbundene Schädelanomalien Anat. Anz 1899 p 237

bulb or any other kind of pump, since the pulse can be accurately gauged while it is being obliterated, as well as on the decline of the mercury column

Sixteen and 12 inches are convenient lengths for the two arms of the U tube so that 18 or 19 inches is ample length for a case for a portable instrument

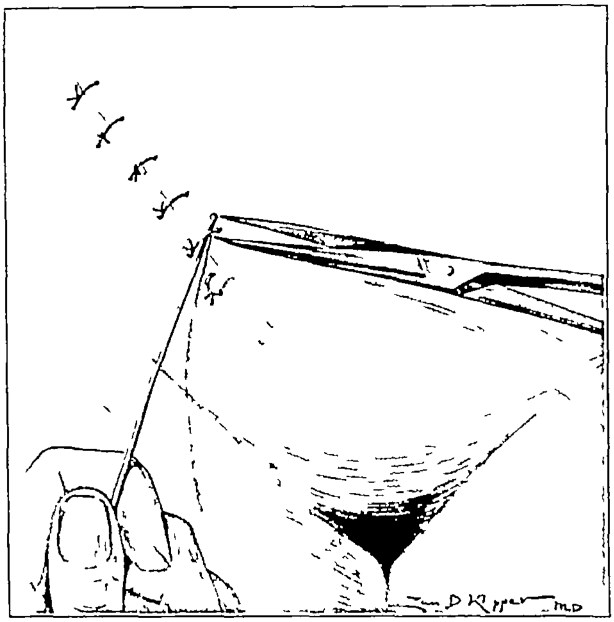
This may not interest physicians who have thousands of dollars a year for the luxuries and elegances of professional life, but it may possibly interest a number of men who earn their income by hard work and are more interested in the support of their families than of instrument makers

524 Syndicate Building

A SUGGESTION FOR REMOVING SUTURES

J R PENNINGTON, M.D, CHICAGO

The suggestion I offer may not be new, in any event, I submit it for what it is worth The illustration is sufficient without description I find it less painful and more satisfactory than the usual forceps and scissor process



Method for removing sutures.

31 North State Street

A CLINICAL NOTE ON HYPERHIDROSIS CIRCUMSCRIPTA

RICHARD L. SUTTON, M D, KANSAS CITY, MO

Instances of localized hyperhidrosis are rather infrequent, if one is to judge from the published case reports The etiology is more or less problematic although, according to the conclusions of Biedl[1] hyperexcitability of the so called "sweat fibers" of the peripheral nerves and of the parenchymatous cells of the coil glands plays an important part in the phenomena of excessive sweat production

The following case of hyperhidrosis is of interest chiefly because of the location and slight extent of the area involved, the early or possibly congenital development of the condition and the excellent general physical appearance of the patient

Patient—C S, a boy aged 6 was referred to me by Dr W T Reynolds, of this city He is an only child and the cutaneous history of the family is negative The birth was a normal one and the patient's health has always been good. There is no history of an injury of any kind Ever since early babyhood there has been present near the inner extremity of the left eyebrow, an area in which sweat production is very greatly increased At times secretion is so rapid that a teaspoonful (4 c c.) of liquid collects on the skin during a period of fifteen minutes The hypersecretion is most noticeable in winter The sweat is normal in odor and color The patient has never complained of headaches or other subjective symptoms Following the administration of pilocarpin, the flow of perspiration all over the body is considerably increased, and particularly in the affected region Small doses of atropin (0 0002 gm) are sufficient to check entirely the action of the coil glands in the affected area Reflex stimulation by galvanization, slight sparking with the ordinary coil or with a high frequency electrode, and sudden changes of temperature will cause an exacerbation at any time, although the hypersecretion is more or less constant under ordinary conditions

The patient is large for his age, and is a well nourished and exceptionally intelligent boy, with brown hair and eyes There is present no suggestion of hydrocephalus Superficially, the skin is apparently normal in every way and a careful physical examination (including blood and urine analyses blood pressure estimation, and luetin and von Pirquet tuberculin tests) disclosed nothing of interest The pupillary reflexes are unaffected and there are no errors of refraction The extrinsic ocular muscles apparently are normal About 4 cc above the inner canthus of the left eye, the skin is constantly covered with perspiration The affected area is irregularly oval in outline and measures 3 by 4 cm in extent Ordinarily the spot is covered with large beads of moisture the amount being greatly increased during periods of mental excitement, and following electric and temperatural stimulation Permission to perform a biopsy was repeatedly requested, but absolutely refused by the boy's father

Hyperhidrosis circumscripta near the inner extremity of the left eyebrow

Treatment—In view of the very satisfactory results that may be secured by the intelligent application of the Roentgen rays in hyperhidrosis of the feet and hands the affected region was treated with this agent A tube of medium hardness was employed and biweekly exposures of from four to six minutes duration at 15 cm distance were given (my experience with the Sabouraud Noire pastilles and the various other instruments for measuring dosage has never been encouraging in this climate) Improvement was noted at the end of the second week and the part was apparently normal after the seventh treatment No erythema was produced and up to this time eight weeks having elapsed there is no loss of hair It is very probable that the procedure will have to be repeated from time to time, until a considerable degree of permanent atrophy of the coil glands is obtained

The beneficial effect of Roentgen therapy in this instance *may be due to the action of the rays directly on the terminal* filaments of the sweat fibers of the sensory nerves (as in the treatment of pruritus), but I consider Pusey's explanation of their action (as exemplified in acne vulgaris) a more acceptable one He considers it probable that the rays stimulate the endothelium of the capillaries and that proliferation with the development of an obliterative endarteritis succeeded by atrophy of the contiguous glandular structure results

It is exceedingly unfortunate that a biopsy was not permitted as a careful study of the affected tissue by the aid of the more modern staining methods would have been of great interest The exact *nature of the histopathologic changes in* these cases is still in doubt as the careful work of Lobanow failed to confirm the earlier findings of Virchow

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1 Biedl Wien med Presse 1899 No 11

2 [illegible] Klin Wchnschr [illegible] p 111[illegible]

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SATURDAY, SEPTEMBER 28, 1912

UNSUSPECTED LOSSES OF WATER FROM THE BODY

A recent contribution on the cause of death in experimental intestinal obstruction, published by Hartwell and Hoguet in The Journal,[1] deserves more than passing notice because of the useful therapeutic indications contained in the communication These authors had earlier been able to exclude an invasion of the blood and organs by bacteria as causal factors in the marked toxic action which follows an obstruction of the bowel[2] They were accordingly at first inclined to adopt an explanation which has been a refuge from various perplexing problems in the past This attributes death and the accompanying pathologic phenomena to the absorption of products of alimentary origin which gain entrance into the circulation in a poisonous form through the destruction of the normal defense of the mucosa against such absorption It remains to be seen whether or not toxins are elaborated when secondary factors, such as strangulation of the intestine and interference with its circulation occur In the particular experiments under consideration great care was exercised not to obstruct the venous return or to impair the blood-supply in any way, so that the experiments cannot be regarded as excluding the possible influence of bacteria and their toxic products or even endogenous poisonous compounds under conditions in which necrosis of the tissues enters into the situation

Hartwell and Hoguet noted in their earlier experience that the longest life of their animals, after the production of the simple obstruction, was under ten days The vomiting which is a conspicuous symptom of the occlusion of the bowel not only deprived the animals of nutrient materials and water, but also led to an actual direct loss of water in the ejected matter This suggested the desirability of counteracting the enforced thirst by subcutaneous administration of physiologic saline solution The outcome of this was a surprising prolongation in the postoperative length of life The abnormal metabolism in the experimental dogs prior to the saline injections was now changed to the characteristic metabolism of starvation, which such animals are able to survive for weeks and even months, when water is allowed to them

The actual loss of water in the vomitus may far exceed the most liberal estimates that one might be inclined to make in the absence of precise determinations In some of Hartwell and Hoguet's animals it averaged about 5 per cent of the body weight each day and was more than ten times the amount which left the body simultaneously in the urine The fact that the immediate serious consequences of intestinal obstruction were promptly delayed when desiccation of the tissues was prevented by the saline infusions emphasizes most strikingly the importance of the thirst factor in metabolism There are manifold situations in human clinical experience in which uncompensated water losses may occur in similar ways Doubtless these have not been recognized so frequently as they deserve to be, or when they have been foreseen, the attempted restitution of body fluid has been far from adequate Protracted periods of intermittent vomiting need to be considered from these points of view, especially when the ingestion of water by mouth cannot be comfortably carried out in sufficient quantity The organism can endure inanition far more successfully than thirst

Another consideration is suggested by the experiments to which reference has been made The vomitus was noted to contain not inconsiderable quantities of chlorin derived from the bile and gastric secretion which it represented The depletion of the store of chlorids, which is probably accomplished more readily by loss of gastric secretion to the exterior than by any other means, is also of moment to the body These factors — loss of water and loss of chlorin—are remediable by simple measures, and it is helpful to be reminded of causes and consequences which the clinician is liable to overlook despite the fact that they almost seem obvious

THE THYMUS AND THYROID IN RELATION TO DEVELOPMENT

The directive influence which some of the glands with so-called internal secretion exercise on the phenomena of growth and development can no longer be overlooked in the light that various pathologic manifestations have thrown on the subject Certain types of infantilism are unquestionably associated with perverted functions of some of the ductless glands In most cases all that we can at present regard as definitely established is a physiologic upset or an anatomic abnormality of the organism on the one hand, and a visible or tangible pathologic manifestation in some gland or tissue, on the other The real significance of the essential interrelationship remains as obscure as it is probable

The customary method of attacking the problems of these functional interactions has been to investigate the effects induced by administration of extracts or preparations of various glands on either normal or defective individuals Dr J F Gudernatsch[1] of New York has recently reported the results of experiments in which fresh glands were fed to rapidly growing animal forms, notably frog tadpoles. The precise significance of these trials is still far from apparent, but the outcome was so specific and characteristic that the observations deserve wider notice because of the suggestions inherent in them. The effects of feeding thymus and thyroid, respectively, two glands undoubtedly involved in the processes of development and tissue differentiation, were diametrically unlike. Whenever thyroid was fed all growth ceased, and the young tadpoles speedily exhibited symptoms of metamorphosis into adult forms. The tail became reduced in size prematurely and the missing limbs at once began to be evolved. The result of this inhibitory influence of the administered thyroid was the production of small dwarf frogs. The stage of transformation in which the tadpoles happened to be when the thyroid feeding was undertaken was apparently without moment. If they were large, the metamorphosed frogs derived from them were large; if small specimens were used in the experiments, diminutive, stunted forms could be produced by the thyroid feeding.

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[1] Hartwell and Hoguet Experimental Intestinal Obstruction in Dogs The Journal A M A. July 13 p 82.

[2] Hartwell and Hoguet Am Jour Med Sc., March, 1912

[1] Gudernatsch J F Fütterungsversuche an Amphibienlarven, Zentralbl f. Physiol, 1912, xxvi, 323

Quite different was the story with the thymus diet. Here early growth was markedly prolonged and the subsequent transformation of the tadpole stage into the adult form distinctly delayed. This evolution, which was unduly hastened by feeding thyroid, was decidedly inhibited under the influence of the thymus gland in the diet. Expressing the findings in terms of related phenomena, a method has apparently been devised by which infantile characters can be suppressed or perpetuated at will beyond the periods peculiar to them in the normal development of the species. Other distinctions, such as differences in the types of pigmentation, could also be made out. These details need not concern us here. The marked antithesis of the two glands under discussion in relation to the phenomena of growth adds new features for speculation to the other physiologic mysteries in which the thymus and thyroid still abound.

IMAGINATION IN SCIENCE AND MEDICINE

It has been said that every successful investigator must be endowed with a certain modicum of imagination without which most research is likely to be mediocre and devoid of genuine interest. Imagination — whether we call it by that name or designate it as tentative hypothesis or a working plan — is the incentive that spurs to the highest scientific effort. The ideas which stimulate to useful work are sometimes allowed to find expression in words before they are tested in reality by a crucial experiment. Sometimes they "work out," as we say; not infrequently they remain a tentative figment of the mind.

Prof. D. Fraser Harris of Dalhousie University has brought together in print[1] some instances in which an idea first represented by a metaphorical expression has in time become clothed with reality. Oxygen was merely a principle to Lavoisier in 1777, and when, a century later, it was produced in liquefied form, "the metaphor had become an actuality." When in writing of the blood Harvey wondered whether there might not be motion, as it were, in a circle, he expressed in metaphorical language what only later became the fact of the "circulation" through the visible demonstration of Malpighi. Willis penned the metaphor as to the impression of an object driving the animal spirits inward, thus giving rise to sensation whereupon they rebound outward "in a reflected wave as it were" to call forth local movement. This mental picture portrays those reflex actions of which physiology to-day can demonstrate the actual phenomena and modern histology unfold their material paths to the eye. In physiologic chemistry the synthesis of the active principle of the suprarenal glands represents "the crystallization of a notion; the thing of the mind has become a thing of the laboratory; the thought has been captured and bottled."

When implicit foreshadowings form in the mind there develop a desire and a manifest tendency to realize an explicit embodiment. We search for the physical basis of nerve-force and fatigue — and even of thought. Modern science is trying to render tangible and visible the seats and causes of functions. Nervous exhaustion, for example, must become correlated with the substantial exhaustion of Nissl granules or the like. Vague forces no longer suffice to satisfy the inquiring mind; the substance itself — toxin, antitoxin, enzyme, carrier — must be discovered. As Harris remarks, it is largely in the sphere of the healing art that this modern tendency toward concreteness is to be seen in its highest perfection. Paludism and the mystery of night air, "telluric influences," malaria in its original significance of "bad air," have been robbed of their primitive vagueness by the discovery of an actual, living organism responsible for the diverse manifestations with which the imagination had previously endowed them. Thus it is sometimes given to the man of science "to touch, to taste, to handle what was once only a notion, a suggestion, a forecast either in his own day or that of a less fortunate predecessor." The fabric of medical progress — indeed, of all progress — is woven from legitimate dreams to a greater extent than the "practical" man is wont to realize or willing to admit.

PUBLIC HEALTH SERVICE TUBERCULOSIS SANATORIUM

It is not widely known that in addition to its twenty-three marine hospitals for American merchant seamen located in the larger ports, the Public Health Service maintains a tuberculosis sanatorium at Fort Stanton, N. Mex. This institution is conducted for the benefit of tuberculous seamen and other beneficiaries of the federal marine hospitals. From its foundation in 1899 to June 30, 1912, a total of 1,937 patients had been discharged. The institution was described in an illustrated article by Dr. P. M. Carrington in THE JOURNAL A. M. A., Dec. 6, 1902.

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[1] Harris, D. F.: The Metaphor in Science, Science, Aug. [illegible], 191[illegible], p. [illegible]63.

The report of the director, F. C. Smith,[1] for the fiscal year ending June 30, 1912, shows that 178 patients were discharged during the year, of whom twenty were cured, twenty-five were distinctly improved, and in fifty-seven the disease was arrested. At the end of the year 176 patients were under treatment. There were fifty-eight deaths, of which ten were due to pulmonary hemorrhage complicating tuberculosis. The large percentage of deaths from pulmonary hemorrhage is further shown by the fact that in 673 deaths at the sanatorium since its foundation, seventy-two, or 10.7 per cent., were due to this cause. Smith states that no records are available of any other institution in this country reporting so high a death-rate from pulmonary hemorrhage as this, although several are at equal or greater altitudes. He believes that the accurate system of clinical records required in the Public Health Service hospitals has revealed facts not peculiar to Fort Stanton but not so far generally noted elsewhere.

It is to be noted that Fort Stanton admits both early and late cases of tuberculosis. While Smith does not discuss the relative usefulness of institutions following this plan as compared with those admitting only early cases, it is true that the former serve a double function in that not only are tuberculous patients in all stages afforded the care and treatment they require, but by segregating particularly the advanced cases, dangerous foci of infection are removed from the community. Especially is this important in the class of patients received at Fort Stanton. The sailor with advanced tuberculosis is a sanitary menace above the ordinary, because of his habits of life and his associations. To segregate such a man is an evident safeguard to the community.

In treating active tuberculosis, the only curative measures employed are rest, fresh air and good food. Drugs are used, however, as indicated by acute symptoms. The use of tuberculin has been entirely discontinued, as its effect is believed to be limited chiefly to the results of its administration on the mental condition of the patient. Eighty-seven tent-houses, each accommodating two persons, are in use. The average number of patients in the infirmary is thirty-five. The experience of thirteen years at Fort Stanton confirms the fast-growing belief that climate in itself is not of first importance in the treatment of pulmonary tuberculosis, but that hygienic living, rest both mental and physical, abundant food and fresh air are the best curative agents so far available. These can be obtained better at home in most cases than by an arduous and expensive journey to a supposedly more propitious climate.

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[1] Public Health Reports, Aug. 30, 1912.

CAN LIFE BE MADE?

Within the past few days the public press has furnished much comment on the nature, origin and maintenance of life, which formed the topic for the annual address before the British Association for the Advancement of Science by its president, the eminent Edinburgh physiologist, Prof. E. A. Schäfer.[1] It is an interesting, if not surprising, sign of the times, that such questions, which were regarded not long ago as outside the sphere of scientific discussion, should be given calm and critical analysis by wide circles of interested laymen and biologists alike. It requires no great stretch of the imagination to picture days when all this would have been both heretical and hazardous before a British audience.

The keynote to Professor Schafer's address is the conclusion that the possibility of the production of life — that is, of living material — is not so remote as has generally been assumed. It is, perhaps, worth while to dwell for a moment on some of the considerations which seem to justify this view. The line of demarcation between inorganic and organic chemistry has now largely disappeared, and biochemistry has won a place for the treatment of the chemical functions of living organisms in immediate relation to these older branches. The study of what were once called "vital processes" is passing more and more out of the hands of the pure biologist into those of the pure chemist. Again, in the modern development of physical chemistry, the newly recognized properties of nitrogenous and other colloids are furnishing the key for the solution of numerous phenomena which earlier escaped a tenable interpretation on the basis of chemistry and physics. Living substance or protoplasm takes the form of a colloidal solution, and many of the manifestations characteristic of changes in living substance find an exemplification in the behavior of such solutions.

A search for properties hitherto assumed to differentiate specifically between the living and the non-living shows that they are by no means confined to what is designated as animate creation. In the aggregation and growth of crystal structures out of a suitable pabulum are found striking analogies with the growth and multiplication of organic forms. The functions of enzymes, which are commonly regarded as agents peculiar to protoplasm, can be duplicated by catalytic substances and methods of purely chemical and physical nature. Even so distinctive a manifestation as the division of the ovum and multiplication of cells by the subsequent processes can be initiated when simple chemical agents are substituted for the spermatozoon in the process of fertilization.

Again, Professor Schäfer has pointed out that in some respects the living substances — the substratum for our vital activities — have been resolved by modern chemical investigations so as to disclose a constitution of no overhelming complexity Here he must have had in mind he nucleus and nucleoprotein whose composition is uccumbing to the attacks of the organic chemist He eminds us that the elements composing living matter re, after all, few "The combination of these elements nto a colloidal compound represents the chemical basis f life, and when the chemist succeeds in building up ns compound it will without doubt be found to exhibit ne phenomena which we are in the habit of associating ith the term 'life'"

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[1] Schäfer, E. A.: Science, September 6, p. 289; briefly abstracted in London Letter, THE JOURNAL A. M. A., Sept. 21, p. [illegible].

Here, then, is a refreshing optimism in regard to the roduction of living substance It must not be assumed hat this is the equivalent of the long-since discarded octrine of spontaneous generation Far from it We re taught by Schäfer to reject any idea of supernatural ntervention or any of the various cosmic theories of the rigin of life on this globe The true explanation is to e found in a gradual process of evolution, the same ause as that which has been instrumental in producing ll other forms of matter in the universe It is not ecessary to assume that the evolution of life occurred ut once in the past, it may be going on now, it may o on in the future Neither are we forced to assume hat because living matter always contains water as its nost abundant constituent, life must have made its first ppearance in the depths of the ocean

For the contention that the destruction of life can e eliminated — a view approached by Metchnikoff in is assumption that the condition of senescence is itself bnormal and that old age is a manifestation of disease — Schafer finds no support "It is only in the sense of ts propagation from one generation to another," he ays, "that we can speak of the indefinite continuance f life, we can be immortal only through our descendnts" The lesson in this consists in the desirability of nsuring that inevitable death may occur in a natural vay — death unattended or unaccelerated by disease f man can anticipate this quiet change without appreension — if he can learn to regard the approach of a imple physiologic process as a natural consequence, eath, according to Schäfer, will be robbed of its terrors nd the dread of the final passing dispersed

Whether or not one agrees with the essence or the etails of Professor Schafer's inspiring contribution to he literature of an inviting question, his frankness and riginality must be admired The storm of contraiction which it has already awakened need not dispel he belief that "the sunshine which science irradiates" vill yet put to flight many of our ultravitalistic onceptions

Current Comment

HARD WATER AND URINARY CALCULI

The general or repeated occurrence of a malady in restricted area offers a suitable opportunity for the nvestigation of its etiology There are regions in Asia where urinary calculi are said to be a frequent finding among the most diverse classes of the population The calculi are apparently not restricted to persons of any special age or race, if one may judge by the patients who come to the physician for relief Abderhalden and Hanslian[1] have lately had the opportunity of making a chemical examination of a considerable number of these Asiatic calculi of which the clinical history was known They were found to consist in the main, of inorganic components Calcium was invariably present Magnesium and phosphoric acid were commonly found Some also contained oxalates and carbonates, occasionally a urate calculus appeared In seeking for local conditions which might serve to explain the formation of concretions of which lime and magnesium are the conspicuous components, an examination of the most common article of diet and of the waters of the region was made A preparation termed "burghul," made from wheat, forms the staple food, which is consumed in large amounts This was, however, not found to be richer in calcium and magnesium than the corresponding wheat products in European countries On the other hand, the investigation of both surface and underground waters from the region disclosed an unexpected hardness of the temporary type Abderhalden regards it as quite probable, accordingly, that the easily precipitable carbonates of calcium and magnesium play a conspicuous part in the production of the prevalent calculi

REVIVAL OF THE THEORY OF MIASMAS

An attempt to reconcile the old theories of miasmas with the present conception of the bacterial origin of diseases has been made by Dr A Trillat[2] In some experiments conducted by him to test the vitality and fecundity of bacteria he found that the bacilli of diphtheria and plague were remarkably stimulated in their growth by exposure to air containing small traces of putrid gases The experiments were first conducted under laboratory conditions, and later by exposing similar bacteria to the products of natural putrefaction out of doors, in the neighborhood of marshes, sewers, etc If the results of these experiments are confirmed, the present methods of disinfection by direct destruction of infective bacteria may have to be modified again to conform more nearly to the old miasmatic theory of the production of disease, and we shall condemn leaky sewer-pipes and other sources of bad smells not only for esthetic reasons, but on account of their effect in promoting the infections We assume that the experiments apply only to the aerobic bacteria Trillat similarly attempts to account for the souring of milk and the putrefaction of meat during thunder storms, not by the effect of the electricity on these substances, or by the production of nitric acid in the air, but on the principle that storms promote the release of putrid gases from the soil and these gases stimulate the development of putrefactive bacteria The theory is interesting and should be capable of *demonstration*

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[1] Abderhalden and Hanslian Beitrag zur Kenntnis der Zusammensetzung der Blasensteine von Bewohnern Kleinasiens Versuch die Ursache ihrer Entstehung zu ergründen Ztschr f physiol Chem. 1912 lxxx 113

[2] Trillat, A Arch. d sc. phys. et nat June 15 1912

A MISGUIDED SWINDLER

An enterprising swindler in England has recently been arrested for selling dried peas as "Little Liver Pills" They were sold on the assurance that they were "excellent medicine" Of course, dried peas are not an "excellent medicine" neither will they cure "liver trouble," but the same may be said of the many "liver pills" which contain drugs and are sold under claims even more fraudulent The British swindler should have been better informed When he desires to sell "liver pills" he should put some drugs in them — poisonous or otherwise, the kind doesn't matter Then he can lie about his product to his heart's content and he will be immune from arrest In fact, if he can sell enough of them he may look forward to a peerage In Great Britain, as in the United States, it is not the mere act of swindling, but the method, that proves dangerous

THE HYGIENE CONGRESS

This week the Fifteenth International Congress on Hygiene and Demography has been in session in Washington, D C, and has proved a notable achievement among congresses We commence in this issue a report of the scientific proceedings, which will be continued in next week's issue The exhibit in connection with the congress is reported as a great success All manner of displays and demonstrations in the various ramifications of the subject of hygiene are being presented to the public, and will have great influence in the way of education The American Medical Association has an exhibit, giving particular attention to some of the most striking features of that department of The Journal called The Propaganda for Reform This congress is a milestone in the advance toward better health and sanitation in this country

Medical News

CALIFORNIA

Sanitation Car to Washington.—The California State Board of Health sanitation car was sent to Washington under charge of Dr J F Leinen assistant to the secretary of the board, to be exhibited at the International Congress on Hygiene

The New Home Project in Los Angeles —The bulletin of the Los Angeles County Medical Association for September 14 devotes considerable space to the proposition of the medical building The plan has made excellent progress and many space reservations have already been made, justifying the expectation that the building will be a financial success

Personal.—Dr George H. Kress has returned from abroad ——Dr and Mrs A. T Newcomb, Pasadena, have gone abroad ——Dr R. L. Richards, M.C, U S Army, San Francisco, has been appointed medical superintendent of the Mendocino State Hospital, Talmage vice Dr E. Warren King, resigned.——Dr T Orde Smith, South Berkeley, was seriously injured in a collision with an automobile, September 13 ——Dr Ernest B Hoag, health officer of Berkeley, has been appointed State Health Officer of Minnesota.——Dr A P O'Brien, San Francisco, suffered a compound fracture of the leg by a fall while on a fishing excursion, recently ——Dr and Mrs John Gallway, San Francisco, have returned from Europe ——Dr Ellis Harbert, Stockton has been appointed a member of the Board of Managers of the Stockton State Hospital

ILLINOIS

Personal —Drs Anna Weld and W R. Fringer, Rockford, have returned from abroad ——Dr Harry R. Carson, Princeton, has been appointed assistant superintendent of the Steuben Sanatorium, Hornell, N Y ——Dr P N Bowman, Gillespie, was seriously injured in a trolley car accident at Worden, September 14

Chicago

Commers for Visiting Scientists —In addition to other events already mentioned in these columns, the German Medical Society and Association of Old German Students will hold a Commers at the Germania Club House, September 29, in honor of the delegation of foreign scientists

Personal.—Dr H G W Reinhardt has been appointed chief coroner's physician, vice Dr Warren E Hunter, deceased —— Dr and Mrs Frederick H England have returned from Europe ——Dr Peter J Christenson was found unconscious beside his overturned automobile, September 20 His injuries are slight ——Dr W A Evans has been elected vice president of the National Mouth Hygiene Association ——Dr Adolfo Luria has returned and resumed practice after four years' study in Europe

KENTUCKY

Infirmary Opened —The Hopkinsville Infirmary, located in a large residence on Clay Street, which has been remodeled for hospital purposes, was opened last week Dr J E Stone is president of the institution and Dr J Paul Keith secretary treasurer

Personal —Dr Lewis S McMurtry, Louisville, has returned after a summer abroad ——Dr and Mrs Joseph M Mathews, Louisville, have returned after several months on the Pacific Coast ——Dr Frank E Corrigan, Louisville, who has been seriously ill, is reported to be much improved ——Dr Amos G Browning, Maysville, is ill in a sanitarium in Chicago

The Work of the Health Department —The Louisville Health Department, in a recent monthly bulletin, gives credit to the Babies' Milk Fund Association for decreasing the mortality of infants almost 50 per cent ——The mortality from tuberculosis has been considerably decreased owing to a campaign of education conducted by the Antituberculosis Association Six nurses have made 9,149 visits to the poor during the year, giving advice as to the prevention of tuberculosis by proper living ——The Health Department urges the passage of the ordinance introduced in the General Council last year, providing for the screening of manure piles to do away with breeding places for flies and mosquitoes

LOUISIANA

Sanitarium Reopened —The Ruston Sanitarium, closed several months ago, has reopened in charge of a trained nurse

Health Train for Washington.—Exhibition cars Numbers 1 and 2 of the State Board of Health left for Washington, September 15, to be exhibited at the National Congress on Hygiene and Demography Drs Oscar Dowling and Meyer Neuhouser accompanied the train, which will make stops going and returning at Meridian, Miss , Birmingham, Ala , Atlanta, Ga , Greensboro, N C , Lynchburg, Va , Montgomery, Ala , and Mobile, Ala

Personal —Dr Oscar Dowling, New Orleans, has been elected third vice president of the National Mouth Hygiene Association ——Dr Willis P Butler, Nashville, Tenn , has succeeded Dr A. P Crain as bacteriologist and chemist of the Shreveport Board of Health ——Drs E L. Henry, Lecompte, and L E Litton, Tioga, have been appointed members of the board of administration of the Louisiana Hospital for the Insane, Pineville ——The office and residence of Dr Maurice Bateman, Franklinton, was destroyed by fire, September 8, with a loss of $1,000

MARYLAND

Sanatorium Incorporated.—The Springer Sanatorium Company has been incorporated with the object to institute and maintain a private institution at Govanstown

Common Drinking Cup Law Enforced —The State Board of Health has enforced the act recently passed by the legislature prohibiting the use of the common drinking cup in places and vehicles

Baltimore

Harriett Lane Home Soon to be Opened.—It is announced that the Harriett Lane Home for Children, Johns Hopkins Hospital, will be opened October 1 The building has been erected at a cost of $300,000 and has accommodation for 100 children It will be in charge of Dr John Howland

Personal.—Dr Edwin V Whittaker has been appointed assistant superintendent of the Sydenham Hospital for Infectious Diseases, vice Dr Sidney Wallenstein, resigned ——Dr John T McCarthy is reported to be ill—nervous breakdown

——Dr J T Sample and R. H. Major have sailed for Europe——Dr Lewis R. Palmer is reported to be seriously ill in a hospital in Philadelphia

MASSACHUSETTS

Hospital Notes—The Boston Floating Hospital has made its last trip for the season During the summer the hospital has cared for 5,784 day patients——The Glover Home and Hospital, Needham, formerly the home of the late Fred P Glover, with accommodation for seven patients, has been opened to the public.

Personal.—Dr and Mrs Charles F K. Bean, West Medford, have sailed for Europe——Dr H H. Cleveland, Boston, was badly cut and shaken in a collision between his automobile and a large touring car in Newton, September 18——Dr Mary Katherine Couch, Somerville, has been appointed a member of the medical staff of the Northampton State Hospital——Dr George R. Fessenden, Ashfield, has been reappointed medical examiner of Franklin County——A petition has been sent to the governor signed by nearly 1 000 physicians, headed by ten past presidents of the Massachusetts Medical Society, urging the reappointment of Dr Herbert B Howard, superintendent of the new Peter Brent Brigham Hospital, as a member of the State Board of Insanity

NEW YORK

New Officers.—Saratoga County Medical Society president, Dr J B Ledlie, Saratoga Springs, secretary, Dr James T Sweetman, Jr, Ballston Spa

Personal.—Dr and Mrs Amos T Baker, Riverdale, sailed for Europe, September 10——Dr Jacob W Bayliss, Buffalo, was seriously injured in a collision between his automobile and a taxicab, September 10

Protest Against Tuberculosis Hospital—There is a movement on foot among the residents in the vicinity to make a protest to the State Board of Health against the establishment of the proposed $250,000 tuberculosis hospital at Croton Lake in the heart of the New York watershed Property owners object to such an institution as they claim that it would decrease the value of property in that locality

Plan Fall Campaign Against Tuberculosis—The State Department of Health and the State Charities Aid Association held a conference in New York City September 18 to plan their work for the fall They intend to conduct an intensive campaign for county tuberculosis hospitals Already twenty one counties have decided to build tuberculosis hospitals, and it is hoped to bring the number up to thirty before the holidays

New York City

German Scientist Dies in New York City—Prof Dr H Wiebe, a member of the Imperial Chemical Institute Charlottenburg, Germany, a delegate to the Chemical Congress died suddenly while dining at the Hotel Netherland, September 11

Personal.—Dr Albert Brundage, Brooklyn, is reported to be critically ill in Maine——Dr John Livingston, ambulance surgeon of the Hudson Street Hospital, was seriously injured in a collision between the ambulance on which he was riding and an automobile, September 15

Middleton Goldsmith Lectures.—These lectures of the New York Pathological Society will be delivered at the New York Academy of Medicine, 17 West Forty Third Street, October 2 and 4, at 8 30 p m, by Dr E. F Bashford, director of the Imperial Cancer Research Fund of London, England, the subject being, ‘A Review of Recent Cancer Research” All interested are invited

The German Travel Party—The physicians of this city entertained the foreign physicians last week Sight seeing trips and entertainments were provided for every day of the week Dr Abraham Jacobi was chairman of the reception committee A dinner was given in honor of these visitors on the evening of September 18 at the Hotel Astor at which Dr Wolff Freudenthal acted as toastmaster The Post Graduate Medical School and Hospital gave a reception on the 19th and the Liederkrantz Society also entertained

Preparing to Aid Babies in Winter—The Babies' Welfare Association report for the week ended September 14 shows a further decrease in the mortality among children under 1 year of age There were only 312 deaths during the week as compared with 322 for the corresponding week of last year The report would have been much better had Brooklyn not nearly doubled its record of deaths from intestinal diseases In every other borough there was a decrease as compared with previous years The association is making preparations to continue its work among the children of congested districts during the winter months

PENNSYLVANIA

Sanatorium Notes.—Work on the State Sanatorium near Hamburg was started last week. It is the intention of the contractors to complete the foundation before cold weather, so that the work of construction may not be impeded through the winter——Dr W W Richardson, Norristown, has purchased the Mercer Sanatorium

Personal.—Dr T C Fitzsimmons, Waymart, has been elected permanent superintendent of the Fairview Hospital for the Criminal Insane——Dr William Davis, Scranton, has resigned as a member of the staff of the Moses Taylor Hospital to accept a position with American National Red Cross——Dr Ralph W Montelius, Mount Carmel, has been elected president of the board of trustees of the State Hospital for the Trevorten, Shamokin and Mount Carmel coal fields of Pennsylvania——Dr William S Middleton, Norristown, has moved to Madison Wis——The home of Dr E H Sloan, Ben Avon, was burglarized September 6

Small-Pox Epidemic in Pittsburgh.—As the small pox, which has been raging in Pittsburgh for several weeks, shows no abatement, the board of health ordered the vaccination of all messengers in the employ of the telegraph and telephone companies, of employees of delivery firms, street car conductors and motormen, bank clerks, department store clerks and others who come in contact with the public daily The city has been placarded with pictures of stricken victims in all stages of the disease for the benefit of those who are not able to recognize the disease in its first stages Up to September 18, the total number of cases had reached 100 with nineteen deaths The disease, which at first was confined to the Penn Avenue district, has now spread to other parts of the city The hospitals and all public institutions are refusing visitors for the present

Small Pox in Carbondale—Because of the seriousness of the small pox epidemic in Carbondale, Dr C J Hunt, associate chief medical director of the State Department of Health, has ordered the immediate cessation of all public weddings and funerals and the state police are maintaining a strict quarantine of all infected districts The spread of small pox in Carbondale is attributed to the carelessness of the local health authorities and physicians in failing to differentiate between chickenpox and small pox C W Webbert chief inspector of the State Department of Health, has caused the arrest of five physicians who were arraigned September 20 pleaded guilty, and each was fined $20 and costs——The State Department of Health has sent out letters to the physicians of Pennsylvania excepting those of Philadelphia and Pittsburgh stating that as Carbondale has no active board of health and as an epidemic of small pox is menacing the health and lives of the people of the state, Dr C J Hunt has been directed to take full charge of public health regulations in Carbondale, to enforce quarantine restrictions and such other measures as may be necessary for the suppression of the epidemic Physicians are furthermore directed to report the different forms of cases of communicable diseases coming under their observation, until further notice is received from the department

Philadelphia

Steamship Held in Quarantine—The steamship *Graf Waldersee*, with 1,382 passengers, was detained at Reedy Island Quarantine Station, September 21, because of a suspected case of small pox in the steerage

Philadelphia Entertains Foreign Physicians.—Under the auspices of the German Central Committee for Physicians' Study Travels about 250 physicians of Germany and Austria a list of whom was given in THE JOURNAL, August 24, arrived in Philadelphia, September 20 and were met at the station by a reception committee headed by Dr J M Anders They were taken in automobiles to the city hall where they were formally welcomed by the mayor In the evening they were given a reception at the Hotel Walton by the Philadelphia County Medical Society On the next day they visited the different medical colleges and hospitals of the city and in the evening were entertained at a banquet given by the city on the roof garden of the Continental Hotel Dr James M Anders presided as toastmaster Hon Rudolph Blankenburg mayor of Philadelphia responded to the toast My City,” Dr Arthur Mudra Imperial German consul to the toast “Foreign Countries’ Prof August Hoffmann Dusseldorf, Germany to the toast “Internal Medicine,’ Hon Charlemagne Tower, formerly ambassador to Germany, to the International

Friendship," the State Commissioner of Health, Dr Samuel G Dixon, to the toast "The Health Department of Pennsylvania," Geheimrath Dr August Gaertner, professor of bacteriology and sanitary science in the University of Jena, to the toast, "The Hygiene Laboratory," Dr Joseph S Neff, director of Public Health and Charities, Philadelphia, to the toast, "Municipal Hygiene," Geheimrath Prof Dr Fr Leoffler, Berlin, to the toast, "Scientific Discoveries," Charles J Hexamer, president of the German American Alliance, to the toast, "The German American," and Dr Solomon Solis Cohen, to the toast, "Former Great Clinicians of Philadelphia"

GENERAL AND FOREIGN

International Congress on Infantile Hygiene—The International Congress for the Study of Infantile Hygiene and Pathology will be held in Paris, October 7

Red Cross Prizes Awarded.—For their inventions for the alleviation of human suffering, Major Paul S Halloran and Capt Henry L. Brown, M C, U S Army, received $505 05 each on September 7, as prizes awarded by the Ninth International Red Cross Conference recently in session in Washington These prizes are from the fund donated for this purpose by the Empress Marie Feodorovna of Russia

Prize for Work on Criminal Anthropology—The Lombroso prize of $200 (1,000 lire) is to be awarded at the eighth international congress on criminal anthropology, to be held at Budapest in 1914 Competition is open to the world, the prize is to be given for the best work or most important discovery in this field between 1911 and 1914 The committee in charge of the congress and awarding of the prize includes Prof G Aschaffenburg, Cologne, Germany, and Prof J von Balogh, Budapest, Hungary

Obstetricians and Gynecologists Elect Officers—At the twenty fifth annual meeting of the Association of Obstetricians and Gynecologists held in Toledo, Ohio, September 17 19, the following officers were elected president, Dr Miles F Porter Fort Wayne, Ind, vice presidents, Drs Charles N Smith, Toledo, Ohio, and James E Sadlier, Poughkeepsie, secretary, Dr E Gustav Zinke, Cincinnati (reelected) and treasurer, Dr Herman E Hayd, Buffalo, N Y Providence was selected as the next place of meeting

Health Association Meeting—At the fortieth annual meeting of the American Public Health Association held in Washington, September 18 to 20, the following officers were elected president, Dr Rudolph Haring, New York City, vice presidents, Drs W R. Batt, Harrisburg, Pa, James Roberts, Hamilton, Ont, and J E Monjaras, Mexico secretary, Dr Selskar H Gunn, and treasurer, Dr Livingston Farrand, New York City It was decided to hold the next meeting of the association in Colorado Springs, Colo

Study of Infant Mortality—The third annual meeting of the Association for Study and Prevention of Infant Mortality will be held in Cleveland, October 2 5, under the presidency of Dr Cressy L Wilbur, Washington, D C The work of the association is divided into sections on educational prevention of infant mortality eugenics, nursing and social work and prevention of municipal infant mortality The headquarters of the association are at the Hotel Hollenden and the general sessions and section meetings will be held at the Engineers' Auditorium

Pensions for Physicians in Spain.—The *Siglo Medico* of July 20 gives the details of the law which provides for an annual pension of from 800 to 1,500 pesetas for physicians connected with the public health service who have become incapacitated in fighting some declared epidemic Physicians in private practice who lend their services in the epidemic are also included among the beneficiaries of the law The pension is also to be paid to the widows and orphans of those who have died at their post A retiring pension of 1 000 pesetas is also available for public health officials who have been thirty years in the service A peseta is 20 cents

Another Insurance Agent Fooling Physicians.—A physician in Ogden, Utah, sends his opinion that the physician continues to head the sucker list He reports that all along the line from Seattle to Salt Lake City physicians have been worked by a polished agent representing the "Royal Order of the Lyons," who appoints a physician exclusive medical examiner for his soon to be organized lodge, allowing him to enter as a charter member for $5 00 promising several hundred examinations at $1 00 a head. The $5 00 and the agent depart, to be seen no more THE JOURNAL receives word of some such scheme every little while and all the schemes are similar in that they show the physician is too ready to part with money to perfect strangers

Investigation of Health Conditions Among Indians.—The Surgeon General of the U S Public Health Service has begun an extensive investigation of health conditions among the Indians, particularly with reference to tuberculosis, trachoma and small pox For the carrying out of this plan, $10,000 has been appropriated by Congress The commission consists of Passed Assistant Surgeons B J Lloyd, Washington and Idaho, W C Billings, Colorado, Oregon and Nevada, F C Smith, New Mexico, R. A Herring, Utah, Colorado, Wyoming, Kansas and Nebraska, L. D Fricks, Arizona, M C Guthrie, Oklahoma, Mark J White, Montana, J W Schereschewsky, North Dakota and South Dakota, and Surgeon Taliaferro Clark, Minnesota, Wisconsin and Iowa

Infectious Diseases.—A case of plague was reported from the municipality of San Juan, P R, September 12 It is believed that the focus from which this case originated has been destroyed During the week ending August 31, two plague infected ground squirrels were found in Alameda County, Cal A plague infected rat was found at Olaa, Hawaii, September 9, which was the first infected rat found since April 24, 1912 A rat catcher at Pepeekeo died September 13 of plague, which was the first case of human plague reported in Hawaii since March 14 Two deaths from plague in schoolboys are reported in Manila, August 4 This makes a total of four cases in Manila since June 19, 1912 No plague infected rats have been found in the vicinity where these cases occurred.——Two cases of plague, one resulting fatally, are reported from Hamburg, arriving at that port, September 17, from Rosario Argentina, on a British steamer ——Cases of poliomyelitis continue to be reported in small numbers from a large number of places widely distributed throughout the country The two foci having the largest number of cases are in Los Angeles, and in western New York with its center in Buffalo Sixty one cases of poliomyelitis occurred in Chicago during the first eight months of 1912 It has been made a quarantinable disease in that city——Many cases of small pox continue to occur in Pittsburgh The disease is of the virulent type and the mortality is high

Harvey Society Lectures.—The Harvey Society, New York city, announces the following provisional program of lectures, subjects and dates for the season 1912 13

1912
Oct 5 Prof Max Rubner
University of Berlin
Modern Steam Sterilization'
Nov 9 Prof. Joseph Erlanger
George Washington University
The Localization of Impulse Initiation and Conduction in the Heart
Nov 23 Prof G N Stewart
Western Reserve University
The Rate of the Blood Flow and the Vasomotor Reflexes in Disease.
Dec 14 Prof F B Mallory
Harvard University
The Infectious Lesions of Blood Vessels
1913
Jan 18 Maj J J Russell U S. Army
'The Prevention of Typhoid Fever
Feb 15 Prof Theodore C Janeway
Columbia University
Nephritic Hypertension Clinical and Experimental Studies
Mch 1 Prof. Edward G Conklin
Princeton University
The Size of Organisms and Their Constituent Parts in Relation to Longevity Senescence and Rejuvenescence
Mch 22 Prof John Howland
Johns Hopkins University
The Scientific Basis for the Artificial Feeding of Infants.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 14, 1912

Steps in Human Ancestry

At the annual meeting of the British Association for the Advancement of Science, Prof G Elliot Smith, president of the Section on Anthropology, delivered an interesting address on steps in human ancestry He said that in spite of all the precise knowledge concerning the bodily structure and functions of apes and men, and their "blood relationships," using the term in its literal as well as its metaphorical sense, it was surprising that there should be so little agreement among leading authorities as to the precise line of man's ancestry Some zoologists maintained that man was not closely related to the old world apes and sought for closer affinities with the new world apes, or even with the lemurs The advance of brain structure more than anything else determined the evolution of mammals as it alone had given them their dominant position, their world wide distribution and their marvelous adaptability to many modes of life The new feature in the brain of mammals which had made possible all their achievements was the cortical area, to which eleven years ago he gave the name "neopallium" In the lower vertebrates each of the avenues of the senses led to a special part of the brain, and although there were free communications between the regions allotted to the olfactory, visual, auditory, tactile and other senses, there was no instrument for the adequate blending of impressions reaching the brain through these different portals or for the storing of impressions, so as to awaken in consciousness the different properties of an object which appealed to several different senses The lower vertebrates do not see hear or feel an object in the sense that we associate with these terms The neopallium of the mammal provided a receptive organ for impressions through all the senses and for their unification and record so that they could be revived in associative memory Moreover, it was the instrument by which all perceptions, past and present, could be freely blended in consciousness, so that the animal could appreciate all the properties of any object to whatever sense they might appeal, and could benefit and so be educated by experience

INFLUENCES OF ARBOREAL LIFE

In the forerunners of the mammalia the cerebral hemisphere was predominantly olfactory Even when the mammal emerged and all the other senses received due representation in the neopallium, the animal was still influenced to a much greater extent by smell than by other senses The adoption of arboreal life by some small insectivore like creature, shortly before the dawn of the Tertiary Period, and the subsequent cultivation of the sense of vision enabled man s remotest primate ancestor to escape from the domination of the sense of smell and to cultivate other senses immensely widening the sensory avenues The demands of arboreal life led to the cultivation of skilled movements of the limbs, which was facilitated by visual control Such skill necessitated increased perfection of the tactile and other sensory areas of the brain The coordination of large groups of muscles for performing some precise action, which must be controlled during the stage of learning by tactile, kinesthetic and visual impressions and memories—the fruits of experience—necessitated the formation of some cortical apparatus which would control and harmonize the activities of the various centers, regulating the muscular actions and bringing the total sum of consciousness at any moment to bear on the performance of a given act Out of this necessity, in the early ancestry of man and in much less degree in other animals, sprang an outgrowth of the motor cortex which became the mechanism for attention and the orderly regulation of the psychic processes Thus, at the very dawn of the Tertiary Period there was developed the germ of all the psychic greatness, which, in the million or so of years that followed, culminated in the human mind The Primates found in the branches of trees the asylum and protection necessary for the cultivation of brain and limbs during the period of their insecurity as an insignificant tribe, but, when they became able to hold their own and waxed great both in size and power, they had maintained sufficient of their primitive character of plasticity to be able gradually *to give up arboreal life and to reestablish themselves once* more as dwellers on the solid earth, competent to hold their own against all comers

MAN AND THE ERECT ATTITUDE

Professor Smith was inclined to look on the orang the chimpanzee and the gorilla, not as ancestors of man but as the more unenterprising members of man's family who were not able to maintain the high level of cerebral development of the feeble bodied human being, but saved themselves from extinction by acquisition of great strength and a certain specialization of structure The feebler man was able to overcome his enemies and maintain himself in the struggle for existence by his nimbleness of wit and superior adaptability to varying circumstances -The erect attitude was brought about when the development of the brain made skilled movements of the hands possible The liberation of the hands for the performance of more delicate movements opened the way for a further advance in brain development to make the most of the more favorable conditions If the earliest gibbons were already able to walk upright how was it that they did not begin to use their hands for skilled work, and at once, before men did so? The obvious reason was that the brain had not yet attained a sufficiently high state of development to suggest appropriate occupation to the exclusion of their function in climbing The gibbon and other anthropoids were "strictly bound down to experience" and had not learned "to anticipate to any extent what is going to happen," because their prefrontal brain areas were still small and relatively undeveloped In the simian brain the sensory areas predominated and the behavior of the animal was to be looked on as the response to immediate sensory impressions of the moment In the human brain the great association areas had grown far beyond the dimensions of the sensory areas As soon as the evolution of the brain made it possible for the ape man to appreciate its ability to perform and anticipate the results of skilled actions, he began to avail himself of the larger life opened to him The erect attitude became stereotyped and the limbs specialized

THE ACQUISITION OF SPEECH

To the memories of the sounds of other animals and of the noises that occurred in Nature the primitive ape man added a collection of records of the expressive sounds emitted by his fellows In course of time the consciousness of these sounds was recorded with the memories of his gestures associating each with some meaning which became a new way of communicating with his fellows The perfection of the cortical mechanism for appreciating sounds and detecting a wide range of qualities was associated in the human brain with a remarkable growth and differentiation of the auditory area of the cortex As intercommunication between members of a social group became vitally important this acuity in recognizing sounds of different pitch tone and timbre and in detecting their precise emotional significance would grow *pari passu* with the acquisition of speech The latter gave a tremendous impetus to human progress by enabling the knowledge acquired by each individual to become the property of the community to be handed on to future generations This heritage was now so great that for the vast majority of men *almost the total of their mental activities consisted in acquiring* the common stock of knowledge

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept 6 1912

Vertical and Slanting Handwriting

At the last session of the Association francaise pour l'avancement des sciences, the section of pedagogy took up the question of the style of handwriting to be taught in the schools and recommended slanting in preference to vertical handwriting The latter, which has been adopted in some public schools in recent years is condemned by hygienists as inevitably inducing incorrect posture in children and tending to produce curvature of the spine Our old slanting handwriting in use since the end of the sixteenth century, permits the most natural position

Foot and Mouth Disease

Foot and mouth disease is making rapid and alarming progress in some departments assuming proportions of a scourge Cattle owners steadily resist the law of July 21, 1881, which requires reports of the appearance of the disease Such reports are seldom made The municipal authorities do not aid the administration in its efforts to suppress all foci of disease for fear of disturbing local commerce The appearance of the disease is carefully hidden in some places in order that these places may not lose the military maneuvers which would be held there otherwise All these considerations render measures *of hygiene and isolation difficult and facilitate the spread* of the disease

A Doctor of Medicine Convicted of Complicity in the Illegal Practice of Medicine

A court condemned a doctor of medicine attached to a fake institute to pay $40 (200 francs) fine for illegal practice of medicine Since October, 1910 this physician has been employed by the establishment in question for $30 (2[illegible]0 francs) a month The doctor testified that he did not sign the letters in regard to treatment and that his part was limited to indicating to patients by letter whether or not the treatment was indicated in their cases and sometimes giving an opinion on the diagnosis The court declared that it was evident that a physician under such conditions could only recommend the treatment when consulted He did not practice medicine freely according to proper examination and control He renounced his character of physician in order to recommend the treatment which was the object of the establishment to which he w[illegible] attached In short he was there merely to [illegible] practice of [illegible]

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept 7, 1912

Death of Professor Cramer

Professor Cramer, the director of the Göttingen clinic for neurology and psychiatry, died unexpectedly September 6 at the early age of 51 He was one of the most important of the younger psychiatrists He particularly devoted himself with success to the questions of attenuated criminal responsibility and also the incidence of mental diseases among children in asylums It was at his suggestion that at Göttingen the child wards of the state were submitted to psychiatric examinations, it was also through his efforts that an institute for nervous diseases was established near Göttingen by the authorities of the province of Hanover Cramer joined the faculty at Göttingen as a psychiatrist in 1895 and was appointed in 1897 as extraordinary and in 1901 as regular professor Last year he declined a call as successor of Ziehen at Berlin. His literary works are very numerous, they deal especially with clinical psychiatry His text book of legal psychiatry for physicians and lawyers has a wide circulation

Prize Offered by the Berlin Society for Racial Hygiene

The Berlin Gesellschaft für Rassenhygiene announces a prize for the discussion of the question Do material and social advancement bring dangers to families in relation to racial hygiene? In this discussion special attention shall be given to the fact that previous experience among the well to do, educated classes of the cities, as well as among the better situated classes of working people, indicates a marked reduction of the birth rate, which leads to the extinction of worthy families and to the exclusion of valuable hereditary forces from our racial life It is left to the authors whether they shall investigate the extent and cause of this phenomena and determine the conditions which influence unconsciously the fertility and quality of the families, as well as whether they shall consider the physical, genealogic, statistic or other view points of the question. For the two best essays prizes of 400 marks ($100) and 200 marks ($50) are offered. Prof von Gruber, of Munich, is one of the judges

Limitation of Advertising of Specialists

The court of honor for the kingdom of Saxony has decided that the advertisements "specialists for external and internal tuberculosis" and "massage of nerves" are not in accordance with the principles of ethics, and therefore not permissible

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept 5, 1912

The Average Age of Marriage for Women and Men

The constant decrease in the number of births and marriages in many countries has caused much comment and speculation as to how to combat this evil Among the results of the investigations the following figures have been ascertained for the population in the south of this country where a mixed nation is living—Italians, Slavs and a few Germans Thirteen per cent. of the women marry before they reach their twentieth year, 36 per cent. marry from 20 to 25 years of age, a more popular age The next lustrum or five year period (25 to 30 years) shows only 25 per cent of marriages, and a constant decrease is now the rule for each lustrum 12 per cent are from 30 to 35 years old, 6 per cent are from 35 to 40 years, 5 per cent marry between the ages of 40 and 45 and 1 per cent between 45 and 50 and over After 50 years the percentage is very low, 0 33⅓ per cent For men a similar statistical study has been worked out but it comprises a much smaller number of investigated couples Less than 1 per cent. of men marry below 20 years Military regulations, apart from other reasons prevent early marriage, for no man fit for military service may marry without special consent before having served his term, that is, before the twenty fourth year Men marry usually between 25 and 35 years of age Of all married couples, the husbands in 14 per cent of the cases founded a family between the twentieth and twenty fifth years in 26 per cent between 25 and 30 years, in 24 per cent they were between 30 and 35 years old at the time of marriage Quite a large number, 40 per cent, marry between 35 and 40 mostly in towns 10 per cent are over 40 years but less than 45, while the remaining 7 per cent. are over 45 years of age when they marry. Of course, only the first marriage is taken into account

Capital Punishment

The problem of capital punishment was the subject of debate at the German Lawyers' Congress (Deutscher Juristentag) recently held in Vienna. While some declared that capital punishment was absolutely necessary, others absolutely denied its justification Those in favor of inflicting the death sentence held that this was the only means of saving the community from criminals like murderers, and they expected a wholesome terror to be exerted by the threatening punishment on would be murderers But they admitted that the chief drawback was the irreparability of an execution which might be the result of an error of justice No religious or sentimental ideas or ideas of vengeance were admissible in the consideration, but simply the conscience of justice demanded the right to pass the death sentence in extreme cases The opposers of capital punishment pointed out that the deterrent effect of this *ultima ratio* had not been proved In countries where capital punishment was abolished (altogether twelve) one could not find an excess or increase of crime in comparison with other countries They contended that the community could rid itself of dangerous criminals by lifelong imprisonment just as dangerous lunatics are made innocuous The idea of cruelty has been abolished from modern judicature If capital punishment should act as a deterrent it would have to be made more cruel and bloody, while on the contrary all modern punishments are governed by humanitarian ideas Therefore the state could do without capital punishment In special instances, as in the case of assassins of rulers, the threatening death sentence acts as an incentive for martyrdom After a heated discussion the motion to abolish capital punishment was rejected by 150 against 158 votes and the following resolution was accepted "The continuance of capital punishment is an expression of popular sentiment of jurisdiction But it shall be stipulated only for the gravest cases of murder and high treason and even then its application shall be considered gravely by the judge" As the resolutions of this congress are in high degree influencing the new penal code just now in preparation in this country, the significance of the above mentioned result of the discussion is obvious It is strange that no medical men were asked to take part in the proceedings of the congress

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Marriages

AMOS TREVAIEE BAKER, M.D, Riverdale, N Y, to Mrs Edna M Pelkie of Matteawan, N Y, in New York City, September 10

CHARLES O JOHNSTON, M D, Claysburg, Pa, to Miss Margaret Della Beegle of Bedford, Pa, at Billings, Mont, September 5

CHARLES BUSHFIELD SCHILDECKER, M D, to Miss Edna May Wightman, both of Pittsburgh, at Corry, Pa, September 11

ELMER E LENHARDT, M.D, Minorsville, Pa, to Miss Anna Louise Erricson of West Pittston, Pa, September 10

ROY CLYDE FRAVEL, M.D, Richmond, Va, to Miss Emma Calhoun Peyton of New Castle, Del, September 18

LEON GILBERT WOODFORD, M D, Canon City, Colo, to Miss Myrtle C Sharpless of Everett, Wash, August 30

GEORGE F SAVAGE, M D, Port Washington, Wis, to Miss Mary King of Spring Green, Wis, September 10

CHARLES F K. BEAN, M D, West Medford, Mass, to Miss Amy Rider of Malden, Mass, September 16

ELMER ANDREW MINER, M D, Independence, Kan, to Miss Eugenia Mason of Chicago, September 19

FLAVEL B TIFFANY, M D, Kansas City, Mo, to Miss Zoe Clark, at Kansas City, September 12

MARTIN OSCAR STAUCH, M.D, Solon, Iowa, to Miss Lida Simons of Clinton, Iowa, September 3

THOMAS DYER HENDERSON, M.D, to Miss Emma G Housel, both of Philadelphia, September 11

CHENEY METCALFE STIMSON M D, to Miss Ellen D Dresher, both of Philadelphia, September 9

WILLIAM SHERMAN BOUGHER, M D, to MARION S WALLACE, M D, both of Chicago, August 28

JAMES EDWARD HUBBARD, M D, to Miss Lillian E. Godwin, both of Easton, Md, July 17

LYLE GILLETT MCNEILE, M.D, to OLGA MURRAY, M.D, both of Los Angeles, September 7

Deaths

Guido Bell, M D University of Freiberg Germany, 1865, formerly a member of the American Medical Association, a member of the Indiana State Medical Association and Mississippi Valley Medical Association for forty five years a practitioner of Indianapolis for several years corresponding editor of *Memorabilien* a medical journal published in Heilbronn, Germany prominent in the German charities of Indianapolis, by common consent of his confreres the most learned physician in arts, sciences and humanities as well as in the special knowledge of his profession who had practiced in Indianapolis," died at his home September 13, from cerebral hemorrhage, aged 73

Abel Huston Thayer, M.D University of Maryland, 1876, a member of the American Medical Association and the American Association of Railway Surgeons a veteran of the Civil War, for several years president of the Taylor County (W Va) Board of Health, local surgeon for the Baltimore & Ohio Railroad for two terms a representative in the West Virginia legislature, died at his home in Grafton, September 8, aged 70

George W Butts, M D Medical College of Virginia Richmond, 1868, of Chuckatuck, Va , for many years a member of the board of supervisors of Nansemond County and at one time county treasurer for eighteen years president of the board of visitors of the Deaf, Dumb and Blind Institute Staunton, a Confederate veteran died at the home of his daughter, in Port Norfolk, Va , September 6, from heart disease, aged 69

Seymour David Carpenter, M D University of Pennsylvania Philadelphia 1849, a practitioner of Cedar Rapids Iowa from 1849 to 1862 surgeon in the United States Army and medical director of the Department of Missouri in 1864 and 1865, who, after the war, engaged in business enterprises until 1892, and was for a number of years a resident of Chicago, died in the Royal Hospital, Montreal, Que , August 29, aged 87

George Frost, M D Dearborn Medical College Chicago 1906 of Chicago, a member of the Illinois State Medical Society instructor in clinical surgery in his alma mater and an employee of the health department of Chicago died in the Chicago Avenue Hospital September 9 after an operation for malignant disease of the throat, aged 51

Lewis Marshall McLendon, M D University of Mobile Ala 1874, a member of the Medical Association of the State of Alabama, representative from Escambia County in the last legislature, and chairman of the house committee on public health, formerly of Brewton, died at his home in Canoe, about September 9

Francis L Frost, M.D Medical College of the State of South Carolina, Charleston, 1861, brigade surgeon in the Confederate service throughout the Civil War, later a member of the common council and city registrar of Charleston S C died at his home in Charleston, about September 5 from senile debility, aged 81

James Harry Barbour, M D Medical College of Ohio Cincinnati, 1852, a member of the Kentucky State Medical Association, at one time mayor of Falmouth, Ky surgeon of volunteers during the Civil War, died at his home in Falmouth September 8, from senile debility, aged 88

Adam M Beers, M D University of Pennsylvania Philadelphia, 1863, a member of the American Medical Association and American Association of Railway Surgeons local surgeon of the Pennsylvania System at Newcomerstown Ohio died at his home, September 10, from heart disease, aged 71

Leon M Nugent, M D Marquette University Milwaukee Wis 1908, of Wauwatosa, a member of the State Medical Society of Wisconsin while attempting to cross the Wells street viaduct, September 7, was run down by a trolley car and killed, aged 25

Milton Anthony Turner, M D Medical College of Georgia Augusta, 1871 a Confederate veteran, for thirty five years a practitioner of Dunbarton, S C , died in the City Hospital Augusta, Ga September 12, aged 64

Robert M Dawson, M D University of Maryland, Baltimore 1869, died at his home in Sherwood, Md , September 8 aged 73

John W Nance, M.D Medical College of the State of South Carolina, Charleston, 1900, a member of the Florida Medical Association, sheriff of Columbia County in 1905, died at his office in Lake City, September 11, from the effects of morphin, self administered, it is believed, with suicidal intent, aged 41

Augustine Perkins, M D Rush Medical College 1876, a pioneer oculist and aurist of Colorado and one of the charter members of the Colorado Physicians' Society died at the home of his daughter in Denver, September 10 from senile debility, aged 72

William R. Osborn, M.D Cincinnati College of Medicine and Surgery, 1874, for several years surveyor of Dubois County, Ind a veteran of the Civil War, a practitioner of Spurgeon, died at the home of his daughter in Petersburg Ind , September 8 aged 73

William H Loughhead, Jr, M D University of Buffalo N Y 1891, a member of the Medical Society of the State of New York, of Andover, died in St James Mercy Hospital, Hornell N Y , September 12, after an operation for appendicitis, aged 52

Frederick W Davis, M D Western Reserve Medical College, Cleveland, 1882, a member of the American Medical Association secretary of the Cleveland Academy of Medicine died suddenly at his home, September 13, from acute gastritis, aged 59

Stillman J Quinby, M D New York University, New York City 1860 of Omaha major and surgeon of volunteers throughout the Civil War died at the home of his sister in Lynn Mass , September 7, from senile debility, aged 79

Felix A Bryan, M D Meharry Medical College Nashville, Tenn 1902, president of the Lone Star State Medical Association and a prominent colored physician of Texas died at his home in Dallas, September 11

Charles Glen Criser, M D University College of Medicine, Richmond, Va 1899, a member of the Medical Society of Virginia, died in his home in Warm Springs, August 18, from cerebral hemorrhage, aged 41

George Burton Andrews, M D University of Vermont, Burlington 1886, at one time a member of the staff of the Central Maine General Hospital, died at his home in Auburn, Me , August 31, aged 50

Raleigh H Hightower, M D Southern College of Eclectic Medicine and Surgery, Atlanta Ga 1890, a Confederate veteran, died at his home in White House, near McDonough, Ga , September 8, aged 73

Charles W Allen, M.D College of Physicians and Surgeons, Keokuk, Iowa, 1868, surgeon in the Confederate service during the Civil War, died at his home in Bedford, Mo , September 1, aged 76

Charles Henry Brueckner, M D College of Physicians and Surgeons, Baltimore 1901, died at his home in Newark, N J June 24, from peritonitis following a rupture of the gall bladder, aged 36

Robert O Wozencraft (license Arkansas 1903) of Princeton, Ark a member of the American Medical Association, died in a hospital in Little Rock September 1, aged 30

S P Jones (license exemption certificate Minnesota, 1883), of Eagle Lake died in Immanuel Hospital Mankato, September 14 *from* cerebral hemorrhage, aged 82

George D Fitch, M D New York University New York City, 1860 formerly of Philadelphia died at the home of his sister in South Jersey August 20

Bennett Eli Bean, M D Bellevue Hospital Medical College, 1872 died at his home in North Middletown Ky , September 11, from heart disease, aged 70

Clarence Stanley Hunter Darlington, M D University of Buffalo N Y 1902 of Oklahoma Okla died in Buffalo N Y , August 18 aged 33

George David Rich, M D American Medical College Eclectic, St Louis 1897 formerly of Imperial Cal died in Petaluma, Cal August 15, aged 41

Edouard Napoleon Fugere, M D Laval University Quebec, 1890 of Manchester, N H , died in McGregorsville, N H , August 29, aged 47

Alfred L Rizer, M.D Detroit (Mich) Medical College, 1876 died at his home in Canton Ohio September 6 aged 68

S C Franks (license Iowa, 1887) of Farmington, Iowa, died at his home, September 5, aged 74

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PERUNA REDIVIVUS

Old Style Peruna Now Sold as Ka tar no

Six years ago Peruna was sold by car load lots where it is now sold by the case The reason is that, as now manufactured it cannot be used as an alcoholic beverage In 1906 the Peruna company was notified that it either must put some medicine in its "booze" or it could be sold only in saloons or other places carrying liquor licenses The company thus found itself between the devil and the deep blue sea If it left its nostrum as it was, it could only be sold by one who held a retail liquor dealer's license, this, of course, would at once make its real character evident to the purchaser If, on the other hand appreciable quantities of drugs were put into the stuff it would spoil its sale as a beverage Evidently believing that the preparation was so popular that nothing could hurt its sale materially, the company chose the latter course A laxative was added and Peruna was still permitted to be sold as a medicine

Incidentally, the public was not given the real reason for the change in Peruna's make up The excuse offered by Hartman—who is the Peruna company—was

> For a number of years requests have come to me from a multitude of grateful friends urging that Peruna be given a slight laxative quality

The results of the change were what might have been expected. Those who had been taking their toddy in the form of old style Peruna found themselves in for a bad quarter of an hour when they attempted to obtain the accustomed stimulation from the modified Peruna, to which a laxative had been added The sale of Peruna diminished enormously Now we learn from the newspaper advertise*ments that the old time Peruna is again on the market under* the name Ka tar no A booklet is issued giving some of the alleged reasons for the resurrection of the old Peruna With the patent medicine" makers' belief that the public soon for*gets and is easily fooled it is now frankly admitted that* the reason for the change in the Peruna formula was, to use the company's own words, because the government decided that Peruna contained too great a percentage of alcohol and too small a percentage of other drugs to protect it from misuse among people inclined to use alcoholic beverages" To quote further from Hartman's interesting and amusing booklet

> Dr Hartman has always been a strict temperance man himself and when the government proposition was made to him that he must either manufacture and sell Peruna as an alcoholic beverage or change the formula he was shocked beyond all measure He could not bring himself to engage in anything that looked like liquor traffic.

In spite of the fact however, that 'a multitude" of Dr Hartman's "grateful friends" had desired the change in the Peruna formula it seems that there was even a greater multitude that objected to it, for we learn

> Ever since the new Peruna was offered thousands of people who had used Peruna as a family medicine for many years began to complain of the change The new taste acquired by additional drugs the new effect that the drugs produced was all strange and caused them to hesitate and some of them to be actually afraid to use it Thus it was that the sale of the new Peruna fell below the sale of the old Peruna

The many requests for the old style Peruna—combined doubtless with the diminishing sales of the new Peruna—have had their effect on Dr Hartman even though he is "a strict temperance man" and 'was shocked beyond measure' by the government's demand that he put medicine in his preparation

> The continuous requests of such a multitude of people have caused him to relinquish in so far that he allows the old Peruna (now called Ka tar no) to be manufactured and sold as an alcoholic beverage

If the idea is to recuperate the failing fortunes of Peruna, we predict that it will fail In the first place, Ka tar no cannot be sold except by those who hold a liquor dealer's license This means that those who, in the past, honestly believed that Peruna had a physiologic action other than that due to alcohol will now know better Those, on the other hand, who used to purchase Peruna because they wanted alcohol but preferred it in the form of "patent medicine" rather than whisky, will be unwilling to go to the saloon or retail liquor dealer for their toddy The attempt to resurrect the old Peruna is foredoomed to failure Those who are *honestly opposed to the use of alcohol will not purchase it,* those who use alcohol surreptitiously will hesitate to go into a saloon for their "medicine," those who want alcohol and frankly admit it can buy, for less money, a better grade of whisky than Ka tar no

Correspondence

Look Out for Dr Ludwig Braun

To the Editor —About the middle of August a man representing himself to be Dr Ludwig Braun came to Galveston He said that he had been demonstrator of pathology in McGill University, which Dr Adami denies, that he was in the employ of the U S Navy, which Surgeon General Stokes denies, and he was guilty of misrepresenting facts in a number of other instances After mutilating a valuable book in our medical library, he disappeared, leaving some unpaid bills If you think best this information might be published for the protection of others He said he was on the way to Buenos Aires He is a short, heavy set, round faced, smooth shaven German who talks a great deal If you should learn of his whereabouts we would be glad to know of it

JAMES J TERRILL, Galveston, Texas,
Professor of Pathology, Medical Department, University of Texas

[COMMENT —In 1910 a Dr Ludwig Braun was tried and convicted of stealing microscopes and other instruments from physicians of Vancouver, B C, and was sent to prison for one year The man said that he had done work in McGill University and that he was a graduate of a medical school in Vienna The name and the similarity of the assertions and actions make it seem probable that the Dr Ludwig Braun of both reports is one and the same person The chances are that Ludwig may turn up almost anywhere and indulge in some of his little eccentricities Therefore it might be well for physicians to be on the lookout for him

Later Since the above went on the press, information is received that a Dr Ludovic Braun, said to be a Russian doctor, but doubtless the same man referred to above, has been arrested at Corpus Christi, Texas, on a charge of stealing medical instruments from Dr W N Wardlow Braun was reported to be in the county jail, having acknowledged the charge It was further stated that the government wants him on the charge that he impersonated a U S government officer —EDITOR]

Harrar's Views on Puerperal Infection

To the Editor —In the article on "Puerperal Infection" by me in THE JOURNAL (Aug 31, p 703), I misquote James A Harrar The quotation should read "Harrar does not advocate intra uterine douches in puerperal infections with streptococci or the colon bacillus In cases of infection with other organisms he believes douches may have some value"

THOMAS J WATKINS, Chicago

Fatigue and Sleep—Athletes find that repose without sleep best relieves fatigue after prolonged strain The reason for this is that the internal secretion antidote to fatigue products is more rapidly formed during waking hours and more freely supplied to the muscles when the blood is not accumulated in the splanchnic area —*St Louis Med Rev*

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed Every letter must contain the writer s name and address but these will be omitted on request

LITERATURE ON PELLAGRA AND HOOKWORM

To the Editor —I wish to obtain a few articles on the etiology symptoms and treatment of (1) pellagra and (2) hookworm disease

E S COSTER M D Solomons Md

ANSWER —The literature on pellagra is extensive A full bibliography of the subject was published in THE JOURNAL, Nov 13, 1909, p 1657 To this may be added the following recent articles

Silver D R Corn and Pellagra THE JOURNAL, Feb 5 1910 p 452.
King H D The Etiologic Controversy Regarding Pellagra THE JOURNAL, March 12 1910 p 859
Delcourt A J Pellagra THE JOURNAL April 2 1910 p 1121
Cole H P and Winthrop G J Pellagra Transfusion in Eleven Cases THE JOURNAL April 23 1910 p 1354
Long J D Pellagra THE JOURNAL Aug 27 1910 p 734
Bass C C Climatic Treatment of Pellagra THE JOURNAL Sept 10 1910 p 940
Discussion on Pellagra St Louis Session of the A M A THE JOURNAL Jan 28 1911 p 251
Cole H P Transfusion in Pellagra A Review of Twenty Cases THE JOURNAL Feb 25 1911 p 584
Nice C M Pellagra Treated with Salvarsan THE JOURNAL March 25 1911 p 896
Roberts S R Sambon s New Theory of Pellagra and Its Application to Conditions in Georgia THE JOURNAL June 10 1911 p 1713
Cole H P Status of Salvarsan in Pellagra Based on Twenty One Cases THE JOURNAL June 17 1911 p 1794
Niles G M The Dietetic Management of Pellagra THE JOURNAL, Oct. 28 1911 p 1430
King P M, and Crowell A J Pellagra Treated with Salvarsan Report of Nineteen Cases THE JOURNAL Nov 18 1911 p 1687
Bass C C Pellagrous Symptoms Produced Experimentally in Fowls by Feeding Maize Spoiled by Inoculation with a Specific Bacterium THE JOURNAL Nov 18 1911 p 1684
Beall K H Etiology of Pellagra THE JOURNAL Nov 18 1911 p 1683
Pellagra THE JOURNAL, Dec 9 1911 p 1940
Cranston W J Salvarsan in Pellagra THE JOURNAL May 18 1912 p 1509
Knight I E Ten Pellagrins in One Family THE JOURNAL June 22 1912 p 1940

Two valuable books have been published on this subject

Marie A Pellagra The State Company Columbia S C price $2 50
Niles G M Pellagra W B Saunders Company Philadelphia price $3

2 Like pellagra, the subject of hookworm disease is treated in an extensive literature We give below a list of original articles appearing in THE JOURNAL from 1908 to the present time

Leidy J Ankylostoma Duodenale THE JOURNAL, June 5 1909 p 1832
Ashford B K and Igaravidez P G Summary of a Ten Years Campaign Against Hookworm Disease in Porto Rico THE JOURNAL May 28 1910 p 1757
Lindeman E E Treatment of Hookworm Disease THE JOURNAL May 28 1910 p 1765
Litterer W The Non Oviparous Female Hookworm THE JOURNAL Oct. 15 1910 p 1378
Gunn H Hookworm Disease in Mines of California THE JOURNAL Jan 28 1911 p 259
Strosnider C F Hookworm Disease THE JOURNAL April 8 1911 p 1024
Ankylostomiasis Uncinariasis or Hookworm Disease Therapeutics in THE JOURNAL April 15 1911 p 1107
Endicott E E My Experience with Hookworm Infection in the Deep Gold Mines of California THE JOURNAL Sept 30 1911 p 1100
Schultz W H Eucalyptus and Chloroform in Hookworm Disease THE JOURNAL Sept 30 1911 p 1104
Gunn H Hookworm Disease in California Its Importation Dissemination and Prevention THE JOURNAL Sept 30 1911 p 1107
Frazer T Mild Cases of Hookworm Disease in Children THE JOURNAL, Sept 2 1911 p 791
Bozzolo C Treatment of Hookworm Disease with Thymol THE JOURNAL, June 8 1912 p 1744
Report on Hookworm Eradication Editorial THE JOURNAL June 22 1912 p 1946
Dorsett T W Syphilis Complicated with Uncinariasis THE JOURNAL, Aug 10 1912 p 443

Good books on the subject are as follows

Dock George and Bass Charles C Hookworm Disease C V Mosby Company St Louis price $2
Hookworm Disease prepared under the direction of the State Board of Health of Florida by Dr Hiram Byrd Assistant State Health Officer
See also Public Health Bulletin No 32, Public Health Service the United States

SIGNED NEWSPAPER ARTICLES INEXPEDIENT FOR A PRACTITIONER

To the Editor —The editor of a local newspaper in a city of about 20 000 urged me to write some popular articles on the more common diseases for publication in his paper I prepared a few articles and they appeared as written by a well known physician of the town The editor insists that I sign the articles but I hesitate to do this because of the danger of being accused of notoriety seeking What shall I do ? Sign them or not

T S

ANSWER —A practicing physician signing his name to popular articles on medical subjects published in his local newspapers would subject himself to criticism Our correspondent answers his question in acknowledging that a signature would make the author liable to the charge of seeking notoriety, and of using a special privilege ' for the purpose of soliciting patients Whatever added value in the judgment of the editor, a signature may give the communication is more than balanced by the possible misunderstanding of the author's motive on the part of the public, as well as of his professional confreres Under these conditions the physician author pays too much for a whistle for the newspaper editor to blow

When the author is ' not in practice and when the article is published in a paper distributed over a large territory a signature and a list of degrees may be used with the article, as they do not rouse the suspicion they engender when one whose living is obtained from the practice of medicine signs the article

THE VON PIRQUET TEST

To the Editor —The statement was made that the von Pirquet test for tuberculosis is unreliable and has been abandoned In a case in which the cause of a continued fever is very obscure and the reaction is positive would it be consistent to base the diagnosis on a positive reaction ?

H L WILDER M D Glen Rose Texas

ANSWER —The reason for the unreliability of the von Pirquet test is that it does not distinguish between active and latent tuberculosis Therefore, when applied to adults, the majority of whom have survived an infection with tuberculosis of some sort it fails to indicate an active disease A latent focus of tuberculosis anywhere in the body may cause a positive reaction although this focus may have no relation to the disease that is causing the symptoms from which the patient may be suffering Consequently, while the von Pirquet test in a positive reaction may be said always to indicate the presence of tuberculosis, it gives us in many cases no information which can be used in determining the cause of the present condition In the case referred to by our correspondent it would not be safe to base a diagnosis of active tuberculosis on a positive reaction

THYMUS SUBSTANCE IN RHEUMATISM

To the Editor —Can you tell me anything about the efficacy of thymus substance in rheumatoid arthritis ?

WALTER E VEST M D Meherrin Va

ANSWER —The use of thymus gland is still in the experimental stage The latest expression of pharmacologists regarding it is that its employment has not yet been sufficient to justify any positive statement as to its therapeutic value

To the Editor —Has any literature appeared recently on the use of thymus gland in chronic rheumatism or arthritis deformans?

M K HENRY M D Philadelphia

ANSWER —The following articles may be referred to

Gwyer F Thymus Gland Treatment of Certain Diseases *New York Med Jour* Feb 19 1910 abstr in THE JOURNAL March 5 1910 p 816
Nathan P W A New and Apparently Successful Method of Treating Metabolic Osteo Arthritis THE JOURNAL June 17 1911 p 1779

POSLAM

To the Editor —I have been asked to give the formula or contents of Poslam Can you enlighten me ?

I W V

ANSWER —Poslam was discussed in THE JOURNAL (May 22, 1909, p 1678) and the matter has been reprinted in Nostrums and Quackery ' From an examination made in the Association s laboratory, it was concluded that the composition of Poslam was essentially

Zinc oxid	1[illegible] 91 parts
Sulphur	[illegible] 7 parts
Cor[illegible]	[illegible] 91 parts
[illegible]	15 18 parts
[illegible] small	
	100 00

LITERATURE ON TRACHOMA

To the Editor —Kindly give me references to any recent literature on trachoma. POLK RICHARDS, White Earth Minn

ANSWER —By consulting THE JOURNAL indexes for the last three years our correspondent will find the following articles

Stuart C C , Trachoma in its Sociologic Aspect *Ohio State Med Jour*, December 1908

Franklin C P Trachoma and the Public Weal *Pennsylvania Med Jour* February 1909 abstr in THE JOURNAL Oct. 17 1908 p 1357

Coover D H New Operative Procedure in Treatment of Trachoma *Ophth Rec*, February 1909 abstr in THE JOURNAL March 27 1909 p 1064

Greeff Germ Causing Trachoma *Deutsch med Wchnschr*, March 28 1909 No 12 abstr in THE JOURNAL May 1 1909 p 1406

Tull F H Trachoma *Jour New Mexico Med Soc* July 1909

Pusey B Trachoma Bodies Possibly the Etiologic Factor of Trachoma *Quart Bull Northwestern Med School* June, 1909 abstr in THE JOURNAL Aug 7 1909 p 488

Sisson, E O Etiology of Trachoma *Denver Med Times and Utah Med Jour* October 1909

White D W Trachoma *South California Pract*, November 1909

Joyes C Trachoma *Texas State Jour Med*, November 1909

Woodson J M Treatment of Chronic Trachoma, *Texas State Jour Med* November 1909

Goldbach L J Trachoma *New York Med Jour*, Dec. 25 1909

Benson, A. H Trachoma, *Dublin Jour Med Sc*, January 1910

Wylie C B Trachoma, *Jour Tenn State Med Assn*, February 1910

Wootton H W Surgical Treatment of Trachoma by the Combined Excision of Heisrath and the Tarsal Resection of Kuhnt *Arch Ophthal* March 1910

Franklin, C P What Shall We Do About Trachoma? *Penn Med Jour* June 1910 abstr in THE JOURNAL, Oct 23 1909 p 1424

Hornback D T Treatment of Trachoma *St Louis Med Rev*, June 1910

Martin H H Trachoma Treated After the Coover Method *Ophthalmology*, January, 1911 abstr in THE JOURNAL, Jan 28 1911 p 305

Brav A Are We in Danger of Trachoma? *New York Med Jour*, March 4 1911 abstr in THE JOURNAL, March 18, 1911 p 847

Harrison W H and White D W Management and Treatment of Trachoma Among Indians *Jour Ophth and Oto Laryngol* April 1911

Sattler C H Etiology of Trachoma *Med Klin* April 9 1911

Green J Menace to Eyesight From Trachoma *Jour Missouri Med Assn* October 1911 No 4

Caldwell, R Surgical Treatment in Trachoma *Jour Ark Med Soc* September 1911 No 4 abstr in THE JOURNAL, July 8 1911 pp 156-157

Safford, M. V Trachoma *Med Rec* Nov 11 1911

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Miscellany

Outdoor Classes for Tuberculous Children

The nation wide campaign against tuberculosis has perhaps put undue emphasis on the treatment and cure of the disease at the expense of its prevention None the less, prevention of tuberculosis is now receiving its merited attention F C Smith ("Relation of Climate to Treatment of Pulmonary Tuberculosis," Public Health Bulletin No 35, 1910) has summarized the important factors in promoting recovery from tuberculosis under the heads of (1) adequate and intelligent rest, (2) proper and sufficient food, (3) abundance of pure air, which, taken all together under skilled medical direction, constitute a well ordered hygiene These factors are equally applicable to the prevention of tuberculosis, and serve to demonstrate that the therapeutic and prophylactic measures are the same The difference arises in the individual to whom the measures indicated are applied

Probably no more important application of the principles outlined in the prevention of tuberculosis can be made than in the case of children especially children from tenement districts Here it is most difficult to secure even one of the essential desiderata of good food rest and pure air From the eugenic point of view such work is of the highest value, not alone with reference to tuberculosis of the skin, glands bone, lungs, etc., but also in developing strong, sturdy adults The anemic, stunted child of the tenements is predisposed to many diseases beside tuberculosis, and if he reaches maturity his offspring will receive a serious hereditary handicap

Recognizing the truth of these considerations, and the pressing necessity of the problem involved the Committee on the Prevention of Tuberculosis of the Charity Organization Society of New York City (as described in its bulletin "Fresh Air Classes," New York, April, 1912), has organized and assisted in the maintenance of fresh air classes in the public schools in cooperation with the Department of Education As a result of the activity of this committee there are now eight fresh air classes in the public schools of Manhattan and the Bronx In some of these the roof is utilized, in others an adjoining park pavilion, the rest making use of class rooms in the school buildings, which have been suitably altered

The Board of Education provides the meeting place for each class and an equipment of movable desks and seats In addition it furnishes each child a "sitting out bag," a sweater, cap a pair of mittens, a pair of felt shoes and a reclining chair This individual equipment costs $8 30 for each child It belongs to the school and is passed from one child to another of course after proper disinfection Each outfit is numbered so that each child has his own articles as long as he is in the class These outfits when not in use are kept in sanitary lockers in the class room The Board of Education also supplies an anthropometric scale costing $19 for each class

The Committee on the Prevention of Tuberculosis assumes the responsibility for feeding the children It has been sought to determine whether the remarkable results obtained were due to the fresh air or the feeding or to both To this end two classes were conducted under each of the following plans

1 A hot lunch is furnished at noon, and in addition milk and crackers both morning and afternoon

2 Lunch only but no milk either morning or afternoon

3 Milk only both morning and afternoon, the children bringing their own lunch or going home for it

In addition one class received no food at all, the children bringing their lunch or going home for it. The comparative results of these plans will be tabulated shortly

The cost of feeding is 17 cents a day per child for a hot lunch, and milk both morning and afternoon The hot lunch alone costs about 10 cents a day per child. After the midday lunch, a rest of three-fourths of an hour is required, during which most of the children sleep

The following plan is followed in selecting the children for the fresh air classes The physician of the committee picks out all the anemic-looking children from the entire school Of these about forty are selected who show the greatest percentage below proper weight for height Twenty five of these are chosen for the fresh air classes on the basis of a hemoglobin test After securing special permission, the selected children are carefully examined for carious teeth, enlarged tonsils or lymphatic glands and adenoids A record is also made of the blood pressure and an accurate weekly weight chart is kept

Striking results have been obtained in the first year of the system Physical and mental improvement was the rule In one class over half the children advanced in their school work faster than the normal rate Control examinations showed marked physical gains of the fresh air children as compared with children of apparently the same type in the regular classes.

The successful management of fresh air classes as outlined is an excellent illustration of the beneficent results of the application of modern medical science to practical hygienic and eugenic problems

Brevity in Medical Writing —It is wonderful what an effect on medical science a few pages of sound medical observation has had Goulard's little volume consists of not more than thirty duodecimo pages, Kane's account of substitution products, which initiated the whole industry of synthetic products, is a short paper, Bodington's pamphlet on the treatment of consumption is of 100 pages, McKeever described his removal of 21 inches of the ileum in an equal number of octavo pages, Waller's description of diapedesis is told in a few pages, and the brevity of Erb's great pamphlet on "Traumatic Peripheral Paralysis" is a surprise to almost every reader who indulges in the luxury of reading monographs —*Dublin Journal of Medical Sciences*

Society Proceedings

COMING MEETINGS

Amer Assn for Study etc of Infant Mortality Cleveland Oct 2-5
American Association of Railway Surgeons Chicago Oct 16-18
Assn of Military Surgeons of the United States Baltimore Oct 1-4
Clinical Cong of Surgeons of North America New York Nov 11-16
Delaware State Medical Society Wilmington Oct 8
Indiana State Medical Association Indianapolis Oct 9-11
Kentucky State Medical Association Louisville Oct 29-31
Medical Association of the Southwest Hot Springs, Ark Oct 8-10
Mississippi Valley Medical Association Chicago Oct. 22-24
National Association for Study of Pellagra Columbus S C Oct. 3-4
Nevada State Medical Association Reno Oct. 8-10
Southern Medical Association Jacksonville Fla. Nov 12-14
Vermont State Medical Society Montpelier Oct 10-11
Virginia Medical Society Norfolk Oct 22-25

INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

Fifteenth Meeting held at Washington D C Sept 23-28 1912

The President, DR HENRY P WALCOTT, Massachusetts, in the Chair

SEPTEMBER 23, 1912—GENERAL MEETING

The congress met in general session in the Continental Memorial Hall at 11 10 a m Notwithstanding the inclement weather, the hall, which has a seating capacity of approximately 2,000, was filled

The official representatives of many foreign countries occupied seats on the platform

President Walcott delivered the opening address, which will appear in THE JOURNAL, October 12

Address of President Taft

In introducing the Hon William H Taft, President of the United States, President Walcott stated that for the first time in the history of these congresses, the chief magistrate of the nation that is host is himself a member and is willing to assume a part of the responsibility of this great gathering

When President Taft arose to speak he received an enthusiastic ovation, the audience standing and cheering him for some minutes When quiet was restored, he spoke as follows

Mr President and Members of the Fifteenth International Congress on Hygiene and Demography, Ladies and Gentlemen

It is my pleasant and honorable duty, on behalf of the people and Government of the United States and by the direction of Congress, to welcome this great convention to Washington Prevention is better than cure The science of medicine and surgery has made wonderful growth in the last forty years, but in that time it would seem as if the science of sanitation, hygiene and preventive medicine had come into being from nothing Now, all prevention and cure comes from the intense energy industry, application, keen discrimination, and the high enthusiastic aims of the benefactors of human kind who are now devoting their lives to research and to the investigation of the causes of disease, its transmission, and its antidotes and who are proceeding *pari passu* with such rapidity and success, that we must expect to find the fountain of youth and perpetual life which was sought for in this country by some of the earlier discoverers

A NATIONAL DEPARTMENT OF HEALTH NEEDED

We need to develop under governmental auspices a bureau or a department in which the funds of the government shall be expended for research of every kind useful in the practice and enforcement of hygiene and preventive medicine That something of this sort may grow out of the present United States Public Health Service there is reason to believe, but it will need far greater appropriations and a widening of its scope of duties before it shall have filled the place that the medical profession of this country has a right to expect the general government to create in the progress of hygiene and demography

Our responsibilities in Cuba, Porto Rico and the Philippines and now on the Isthmus of Panama, have so enlarged our knowledge of the possibilities of successful sanitation under the most burdensome conditions, and have so impressed both professional men and the laymen at all familiar with the conditions, with the necessity for more rigid and comprehensive health laws and a stricter enforcement of them for the general good, that if the Spanish War resulted in nothing else, it was worth a great deal more than its cost in this useful development of one of the most important functions that modern government has to discharge as well as making clear the need of an additional branch of general education in the matter of hygiene of the home and the individual

It would seem as if the tropics were the proper place for beginning a crusade on this subject Nature is more rapid in its growth, not only in vegetable and animal life, but in the diseases of that zone. When we first went into the Tropics, our purpose was to make that region habitable for white people We have demonstrated that as a possibility Now we have gone beyond the mere provision for those who come from the Temperate Zone and we are engaged in developing the tropical races into a strength of body and freedom from disease that they have never had before

I speak of this with considerable emphasis because I have had personal experience I have traveled through the Philippines and drank the water which seemed so sweet and cold and then came out and found myself a perfect zoologic garden in the number of various animals described by Latin names of which I was the custodian (Laughter)

THE PROBLEM OF EDUCATING DEPENDENT PEOPLES

Of course, the problem of enforcing health regulations against the will of ignorant people whose natural laziness and resentment makes enforcement most difficult requires a strong government and the reason is found in taxation to maintain an adequate health police service These are problems in the Tropics that our governments must meet There is no difficulty in running a government if you limit its functions to the mere matter of preserving peace and the administration of justice, but if you propose to add to this adequate systems of education government hygiene and other internal improvements, you must look about for sources of revenue which are not always forthcoming and the absence of which retards progress in the interest of the people

If the government is to be more or less popular the people themselves must be educated they must understand the importance of hygienic restrictions, to accept them and to impose on themselves the burden of taxation which is essential in order that progress shall be made at all

GREAT STEPS FORWARD IN TROPICAL HYGIENE

I consider it a proud record of the American Army that, through its medical corps engaged in hygienic work in the Tropics, so many important discoveries as to the transmission of disease and the methods of stopping its spread have been given to the world, and all of this has dated chiefly from the time of the Spanish War (Applause)

The elimination of small pox by thorough vaccination the study of bubonic plague, its mode of transmission, suppression its cause and method of treatment, the study of cholera and its method of treatment the study of beriberi and its method of prevention which has not been satisfactory the learning of the cause of yellow fever and its transmission by the mosquito, and its method of treatment, the minimizing of the bad effects of malaria by the destruction of the mosquito which carries its poison the ridding of the race of hookworm, which demoralizes and tends to physical degeneration and the prevention of typhoid fever by inoculation—all constitute great steps forward in the treatment of diseases though most of them are especially formidable in the Tropics and also in the Temperate Zone, but in the discoveries that have been made it is satisfactory that our American physicians have taken and are taking a most important and honorable part (Applause)

It is very certain that but for those discoveries the construction of the Panama Canal which now since 1904 has been going on with giant strides and which will be completed within a y[illegible] n impo[illegible] French government, [illegible] tless [illegible] essful in building the canal but for the problems of hygiene which the science of that day had not enabled them to do The chief health officer of that strip of ten miles has enabled 50,000 people to live healthy lives and to carry on the work of building this great canal, and he should share with the chief engineer the honors that shall crown this great achievement (Applause) The possibilities of improvement of tropical countries through governmental hygiene are so great that it makes one who has any conception of what they are grow enthusiastic in the contemplation of what centuries may bring forth in this regard.

VALUE OF THIS CONGRESS

I cannot conceive of any congress of more useful character than the one which it is my honor to welcome It is useful, because a comparison of the ideas and the discoveries and the theories of men engaged in the same hunt for the truth and in the same delving into the mysteries of Nature, with a view to detecting her secrets in the matter of the cause and cure of disease must result in a general benefit to all who partake in such a congress The science of hygiene and sanitation and demography must be given an impetus the world over by the temporary concentration in close quarters of men from all the world, who have been giving their lives to the same problems

It is delightful to contemplate this phase of the congress, because it is one of those shining instances of world wide organization for the promotion of the peaceful arts, of which I am glad to say the number is growing every year, and in which the common interest of humanity is made conspicuous by contrast with the selfishness of each nation in the conflict of interests that are typified by our burdensome and ever increasing preparations for war (Loud applause)

Such congresses cannot but make for the permanence of peace They must create a deeper love in man for man. They do stir up in the membership of such a congress, having representation from all the world, a greater human sympathy, and offer to the scientific student who is willing to devote his life to the development of a truth that shall add to the health and comfort and happiness of his fellows, a reward that cannot be measured in money, but is to be found only in the consciousness of the highest duty well done But while these things are true with respect to the world effect of such a congress, its local influence on a country like the United States is much more marked and important in the impetus that it gives to all who are responsible for the health of the community, either in their professional or by reason of their official and governmental responsibility They must have in such a meeting as this their ideas and their knowledge, and they must derive inspiration for better and more enthusiastic work from the commingling of the greatest scientists of the world here, and their exchange of views and from the very energizing atmosphere of the congregation I should think such a congress as this would increase the number of novitiates for the profession of medicine and surgery

Within the last decade or so no profession has shown greater improvement, no profession has done more for the improvement and for the promotion of health and the comfort of mankind than the medical profession.

I congratulate the medical profession of the United States on this great congress which is meeting here

Ladies and Gentlemen of the Fifteenth International Congress on Hygiene and Demography, I welcome you to America I welcome you to Washington, and I sincerely hope that your stay here may be as pleasant and agreeable as I am sure it will be useful to this country and to the world (Loud applause)

The Foreign Official Delegates

At the conclusion of President Taft's address, the secretary general, Dr John S Fulton, called the roll, and the following official delegates responded for their respective countries

Argentina—Dr Juan G del Castillo.
Austria Hungary—Dr Arthur Schattenfroh Vienna Prof. Francis Tangl University of Budapest
Belgium—M Velghe Director General of the Administration of the Service of Health and Hygiene
Brazil—Dr Alfredo da Graca Couto Rio de Janeiro
Canada—Dr Frederick Montizambert Director General of Public Health
Chile—Fleet Surgeon Major Alberto Adriasola
Costa Rica—Dr Calvo
Cuba—Dr F Torralbas Havana
Denmark—Dr A C J Borntmann
Dominican Republic—Dr M Francisco J Peynado Envoy Extraordinary and Minister Plenipotentiary
France—M Emile Kern
Germany—Dr Rubner Director of the Physiologic Institute University of Berlin
Great Britain—Dr Theodore Thomson Local Government Board London
Greece—Dr L L Caftanzoglu
Guatemala—Senor don Joaquin Mendez
Haiti—Don Solon Menos, Envoy Extraordinary and Minister Plenipotentiary
Holland—Dr M W Pynappel Chief Inspector of Public Hygiene
Italy—Prof L Pagliani University of Turin
Japan—Mr Seiji Tsukamoto Counsellor of the Department of the Interior
Mexico—Dr Eduardo Licéaga Mexico City
Norway—Prof Axel Holst University of Christiania
Russia—M Zort Councillor of the State and Physician of the General Staff of the Chief of Brigade of Ships of the Line of the Baltic Sea Squadron
Siam—Prof Paul G Woolley Miami College of Medicine University of Cincinnati Ohio
Spain—Dr Llonerto Envoy to the King of Spain

After the announcement of honorary vice presidents, the congress was declared open for the transaction of its scientific work

The Opening Social Event

A reception to the delegates, their wives and daughters was given by President Taft at the White House at 3 p m, the garden party being perforce abandoned on account of rain

THE SCIENTIFIC PROGRAM

The Relation of Anaphylaxis to the Infectious Diseases

Dr Victor C Vaughan, Ann Arbor, Mich The theory of vaccination may be traced by comparing its effects to the action of the gastric juice in destroying the protein poisons which are carried into the body in all food substances, such as meat, milk, eggs, vegetables and corn meal We eat proteins from most diverse sources, still all of them contain a most potent poison The poison is to some extent set free in the stomach but it does not diffuse through the wall of the alimentary canal. A man may drink water containing typhoid bacilli and he is not immediately ill There is a period of incubation of about ten days' duration, during which time the bacillus is multiplying in the body in great numbers Suddenly the period of incubation stops and the onset of the disease manifests itself This marks the time when the body cells have been sensitized, beginning to elaborate in active form a secretion which splits up and destroys the typhoid bacilli This continues during the course of the disease In splitting up the invading organism the protein poison is set free and this is accountable for the symptoms and lesions of the disease. If the poison is set free too rapidly the temperature falls and death results This is practically what occurs in every infectious disease whether it be of bacterial or protozoal origin

By the introduction into the body of very minute doses of foreign protein the body cells may be trained, as it were, to split up any bacterial or protozoal cell This is the fundamental principle of vaccination

After small pox, typhoid fever and tuberculosis, the immunity secured is always specific, it protects against the one disease and no other For some years I have recommended and practiced vaccination of the uninfected members of families in which one or more cases of tuberculosis are developed The non poisonous residue of tubercle bacillus supplies a perfectly safe and efficient vaccine and in my opinion it should be generally used With vaccination and the other means now employed, I feel confident that success will crown the efforts to eradicate this disease The most hopeful outlook for the control of cancer lies along the direction of anaphylactic study and treatment

Typhus Fever

Drs Joseph Goldberger and John F Anderson, Hygienic Laboratory, United States Public Health Service, Washington We have traced typhus fever to an insect—the louse—

as a carrier, and our investigations have disclosed nearly 300 cases of the disease in New York City, as well as a number in Chicago Philadelphia Baltimore and Washington, although it is thought that typhus fever has not visited America for some years

The disease, however, is *found to be in a mild form* but mild forms of disease have a bad habit of becoming malignant on the least provocation and the only safe way is to keep away from them altogether This can easily be done by keeping clean and avoiding the deadly louse

Typhus fever is one of the six diseases that the United States government considers so dangerous that special quarantine regulations have been issued to keep them from our shores The malady usually visits those who live in crowded and insanitary habitations and is the poor man s disease

We have been experimenting with typhus for three years with the result that we find that the germs of infection are carried by lice. The insect is not the ordinary kind found on plants or animals but those that are carried in the clothes or on the head Why the louse should be the only insect that carries typhus we have been unable to determine One of these insects which bites a patient during the fever period will be able in about four days afterward to give the disease to any unfortunate victim he may chance to fasten on

Experiments have shown also that monkeys may contract the disease through the bites of lice

(To be continued)

AMERICAN ROENTGEN RAY SOCIETY

Thirteenth Annual Meeting held at Niagara Falls N Y, Sept 11 13 1912

The President, Dr **Frederick H Baetjer**, Baltimore, in the Chair

Officers Elected

The following officers were elected for the ensuing year president, Dr Henry K Pancoast, Philadelphia vice presidents, Drs A W Crane, Kalamazoo, Mich, and Chas F Bowen, Columbus O secretary Dr Sidney Lange Cincinnati treasurer, Dr Leonard Reu, Buffalo N Y, librarian, Mr H W Dachtler, Toledo, O, member executive committee Dr George C. Johnston, Pittsburgh, Pa

Boston, Mass was selected for the place of holding the next annual meeting, some time in September, 1913

Roentgen Diagnostics of Internal Medicine

Dr. **A W Crane**, Kalamazoo, Mich I wish to emphasize the interdependence of the Roentgen ray, the laboratory and clinical examination I maintain that the roentgenologist should interpret his own plates and screen observations His findings should be interpreted always in conjunction with the laboratory and clinical findings therefore, it is desirable that the roentgenologist consider himself a consulting diagnostician and that he maintain a clinical laboratory in addition to his roentgenologic equipment Furthermore a clinical laboratory is necessary to control the treatment, and not only to aid in making a diagnosis I have invariably pursued this plan in my own work and can cite a large number of cases in which I would have been unable to make a diagnosis based on the roentgenogram alone Recourse to the clinical laboratory at once solved the problem

The Demand for Roentgen Diagnosis

Dr. **Sidney Lange**, Cincinnati The roentgenologist is really a consultant, and not a maker of pretty pictures Patients are sent to him for the same purpose that they are sent to the clinical laboratory to get additional light on an obscure case The pathologist does not content himself with examining the urine, he also examines the blood, stomach contents, sputum, and even pieces of tissue The roentgenologist should, therefore, make a very thorough and complete examination of every patient and not only examine one certain region, such as the gall bladder The appendix the ovary the intestine, especially the colon, may be the seat of the disease, the symptoms of which are referred to the gall bladder region Therefore an examination to be of any value should include all of these regions

DISCUSSION

Dr **Henry Hulst** Grand Rapids Mich Roentgenologists must either be all around diagnosticians and act in the capacity of consultants or they must be photographers and be employed by diagnosticians We occupy a peculiar position The Roentgen ray is diagnostic and therapeutic There is nothing else like it in medicine As a diagnosticum we can hardly make it a specialty any more than one would be a specialist in the use of the cystoscope I think we make too many pictures and rely too much on what we find in them Instead of being content with making pictures and giving them to patients and doctors we should interpret pictures and give our opinion on the case just as any other consultant does When we are using the Roentgen ray for diagnostic purposes we are consultants Patients are sent to us to get our advice and opinion They are not sent to us to have pretty pictures made

Dr **Percy Brown** Boston The roentgenologist should be a well trained medical man He must be a physiologist and an anatomist as well as an internist because the Roentgen ray will disclose anomalies in development as well as errors in physiology, such for instance, as the anti peristaltic action of the large bowel

Dr **Alfred L Gray** Richmond Va There is danger in a purely roentgenographic specialty We ought to be general practitioners first and then specialists It is especially important that the roentgenologist have a thorough training in clinical diagnosis and pathology The Roentgen ray may enable us to make a diagnosis on the other hand the clinical and laboratory findings may be necessary to make it possible to make a diagnosis from the roentgenogram I have often had a patient referred to me for examination and found conditions present which led me to refer the patient to some other specialist who was able to make the diagnosis We should not content ourselves with the roentgenologic examination We must know when further examination is necessary

Dr **Paul Eisen**, Milwaukee If we want to merit the name of diagnosticians, we must keep up with all the latest methods of examination

Dr **George E Pfahler**, Philadelphia The subject of roentgenology is too broad for any one man to know it all, therefore we must not forget to attend to our own business first and not try to take charge of the entire examination of every patient sent to us It is well enough to know when further examination is necessary without being able to make it oneself

Dr **George C Johnston** Pittsburgh What we should know first of all is the full and complete history of every patient sent to us When an up to date internist or surgeon refers a case to me I always expect to get such a history The necessary clinical examination should be made, laboratory examination should be made, [illegible] rts from all of these are furnished me I expect to [illegible] I get them There is no reason why I should [illegible] We should not go into these things [illegible] as good work there as we can in our own [illegible]

Post Operative Treatment

Dr. **Arthur F Holding**, New York C[illegible] of certain scientists and philanthropists the [illegible] ed the Huntington Cancer Commission of [illegible] ing of members of the faculty of Cornell Un[illegible] al lege whose duty it is to investigate thor[illegible] t of all forms of cancer by the Roentgen ra[illegible] cines electrolysis etc There is such wide [illegible] as to the value of the non surgical trea[illegible] the reports made as to its efficacy that [illegible] advisable to make a thorough investigation [illegible] publicly The committee will endeavor to [illegible] ratus and technic and to make a complete [illegible] cases as possible The assistance of all [illegible] this line of work is sought

Treatment of Malignant Growths

Dr Russell H Boggs, Pittsburgh, Pa The degree of malignancy varies with the lymph supply of that part of the body in which a cancer is situated. The richer the lymph supply, the greater the degree of malignancy When properly applied, Roentgen irradiation diminishes the permeability of the lymph vessels, and reduces the possibility of metastasis occurring as well as preventing, in large measure, a recurrence If the treatment is given before operation, an inoperable case may be converted into an operable one Every malignant growth presents a separate and distinct problem which demands for its solution consistent team work on the part of the patient and the operator The improvements in surgical technic have done much to reduce the number of recurrences of cancer, but expert surgeons are not satisfied with the results obtained from surgery

Roentgen irradiation of malignant growths must be powerful enough to destroy the neoplastic cells and to stimulate the healthy cells to resist the invasion A small dose is useless Small doses given for a long time really favor the development of the growth, because they stimulate, whereas they should destroy I have treated quite a number of cases of lymphosarcoma of the neck both before and after operation The experience gained from treatment without operation has convinced me that these tumors will usually disappear under heavy Roentgen treatment, and that the results are more permanent, if the treatment is given first without operation In nearly every case the mass can be made to disappear, if the treatment is begun before the glandular involvement is too extensive After the growth has entirely disappeared, a second series of radiations should be begun as soon as the skin reaction has disappeared It may be necessary to give a third or even a fourth series of treatments I have patients apparently well for over four years, the diagnosis having been made microscopically

My most successful results in sarcoma have been confined chiefly to the lymph nodes The cancer cases in which Roentgen treatment has been of the greatest service were those of involvement of the breast, cervical lymph nodes, and other external parts when internal metastasis had not taken place Roentgen therapy should be applied to deeply seated growths, not with the idea of effecting a cure, but to check the progress of the growth and to make the patient more comfortable Post operative treatment should be begun immediately after the operation The treatment must be given according to the best judgment of the roentgenologist, and not of the physician or surgeon referring the patient for treatment Some unfavorable cases can be made favorable for operation by anteoperative treatment, and hopeless cases may be treated palliatively with great relief to the patient

DISCUSSION

Dr. George E Pfahler, Philadelphia I saw a case of lymphosarcoma involving the side of the neck which was considered hopeless from every point of view I treated the patient with the Roentgen ray in the hope that I could give some relief Within three months the tumor had undergone cystic degeneration I referred the patient to a surgeon, who opened the cyst and drained it of a large amount of yellowish, pus like fluid. It was assumed that my diagnosis was wrong that the case was one of tuberculosis Pathologic and clinical examination, including the inoculation of guinea pigs failed to substantiate that assumption In about six weeks recurrence was noted and the patient finally died of sarcoma I merely cite the case to show what the Roentgen ray can do in these cases

I have had cases of carcinoma in which the course was similar to that cited in the case of sarcoma I agree with Dr Boggs that the first treatment we have for these cases is Roentgen therapy We must give as large a dose as possible, without producing a burn, and persist in the treatment for a long period of time There are a large number of cases on record in which an apparent cure was obtained by Roentgen treatment so that a cure under such conditions is by no means to be regarded as an accident

Mr H W Dachtler, Toledo A few years ago I refused to treat any case with the Roentgen ray when I was convinced that it was perfectly useless I find now, however, that some patients treated two years ago are apparently well, patients whom I would not have given any treatment at all had I seen them three years ago Some surgeons now refer every case of malignant growth for Roentgen treatment immediately after the operation

Dr P M. Hickey, Detroit The results obtained by me in several cases of malignant growth have convinced me that the combined treatment of surgery and Roentgen irradiation is the proper one, and that it should be carried out whenever possible We can now hold out more hope to the patient than was possible a few years ago

(To be continued)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty Fifth Annual Meeting Held at Toledo Ohio, Sept 17 19, 1912

The President, Dr X O Werder, Pittsburgh, Pa, in the Chair

Cesarean Section in Double Uterus and Double Vagina

Dr. N Stone Scott, Cleveland, reported the case of Mrs A., aged 32 years, primipara, who had always had a moderate dysmenorrhea, was never very regular, never ahead of time, usually late a week or more, the menstrual period was preceded by a week of pain She had no idea that there was an abnormality of development such as was discovered by her physician at the time of the confinement After labor lasting three days, the attending physician discovered a septum in the vagina, with a cervix on each side of the septum, the pregnancy being on the left side No progress was made in labor The os was found undilated, although it easily admitted the finger The head was high, but firmly impacted in the pelvis The pelvic measurements were those of an equilibrio justo minor with a conjugata vera of about 9 cm

A high cesarean section was now carried out. After the placenta and membranes had been removed, examination proved that the uterus was double, with a rupture of the septum between the two cavities This rupture occurred at the thinnest place, in the middle of the septum, but even here it was a quarter of an inch thick Through this rupture the false decidua were removed from the right uterine cavity, the fetus occupying the cavity on the left The tubes were normally implanted, one at either side of the fundus There was no cleft in the uterus itself, but a raphe running the entire length of the uterus was plainly seen at the surface

Prior to the patient's leaving the hospital, careful examination was made to ascertain postoperative conditions The cervix on the right side presented the features of an unimpregnated cervix, the one on the left corresponding to an ordinary cervix two weeks after delivery, it was considerably larger than the cervix on the right side, somewhat dilated, and in it was a very small lateral tear The left vagina was possibly a trifle larger than the right, though not much Both cervices lay comparatively close to the median partition On the fourteenth day following the laparotomy, mother and child went home in the best of condition

Acute Dilatation of the Stomach

Dr Charles Edward Ziegler, Pittsburgh, Pa I report a case of acute dilatation of the stomach following cesarean section Postural treatment and hypodermic medication appeared useless in the case The supply of fluid was kept up by rectal and subcutaneous infusion of salt solution Gastric lavage was the only treatment that caused any amelioration in the symptoms so far as we were able to judge If there is one thing to be learned in the treatment of this condition from my case, it is that gastric lavage in acute dilatation of the stomach should be repeated at intervals of not less than two hours My own feeling is that gastrostomy, with continuous irrigation of the stomach, ought to be the ideal treatment, and should be given a trial in cases which do not respond to two hour lavage

DISCUSSION

Dr. Herman E Hayd, Buffalo, N Y I do not think we can put the case reported by Dr Davis in the category of acute gastric dilatation Unfortunately he did not have a post mortem examination It is possible that this woman had a dilated stomach previous to her pregnancy, and that this dilatation was in a measure hastened by the advancing or growing uterus, and just as soon as he emptied the uterus of its contents, the patient had an acute dilatation of the stomach from the large amounts of ether and air that were taken in It is unfortunate that we are compelled to accept the services of untrained anesthetists One of the most important duties the physician is called on to perform is the administration of the anesthetic in an operative case We are going to get into trouble before long if we delegate this to a nurse The laws of New York state prescribe that no one but a regular medical graduate may give an anesthetic.

Dr. Francis Reder, St. Louis I think that dilatation of the stomach in these cases is due in many instances to the toxic elements of the anesthetic that has been administered during a long period There are other toxic elements which will bring about the same condition

Dr. Sylvester J Goodman, Columbus, reported a case in which the skull of the fetus had been crushed by the attending physician some hours before he saw the woman The uterus was full of small fibroids He advised hysterectomy, which was refused on the ground that the child was dead This woman was again pregnant and he expected to do a second cesarean section the following month

Dr. William H Humiston, Cleveland Cesarean section in an uncontaminated case is so far safer and surer in its results than the high forceps operation, that I believe the time is coming when the high forceps operation will not be resorted to by the general practitioner, but only by the thoroughly trained man in obstetrics

Dr William S Bainbridge, New York A woman was brought to me from Bridgeport, Conn, about four years ago, with a history of having had six pregnancies, with attempts at delivery each time, most of them instrumental, with death of the child in each case She had a justo minor pelvis and came to me for repair The entire pelvic floor was torn away and the bladder opened There was a vesicovaginal fistula as well as a rectovaginal fistula I repaired these injuries, and told her she must not become pregnant again, although she was very desirous of having a living child She came back to me a year following or a little later pregnant I told her we should have to do a cesarean section, explained to her what was to be done, and two years ago a child was delivered by cesarean section

Dr A S Hotaling, Syracuse, N Y Two years ago I did a cesarean section for eclampsia on a girl aged 17 She was seven and a half months pregnant, with undilated, unobliterated cervix About a month ago she came into the hospital as a private patient, having been brought there by her physician, who thought she was in labor I saw her at 9 o'clock in the morning She died shortly after 1 o'clock from hemorrhage Autopsy the next morning disclosed rupture of the uterus The organs were all transposed. The rupture was directly through the old scar

Dr Hugo O Pantzer, Indianapolis Bearing on the multiple etiology of gastric dilatation, I wish to report a case that recently came under my observation in support of the supposition of Dr Davis that in his case acute pressure applied to the stomach may have been a factor in producing gastric dilatation The patient put on a snugly fitting corset to attend an automobile race, and was brought away from there in convulsions Examination disclosed that she had gastric dilatation which was brought on by constricting her abdomen too tightly by means of this corset

Mechanism and Treatment of Placenta Prævia

Dr. Henry Schwarz, St Louis 1 No form of placenta prævia, as such, ever offers a justifiable indication for cesarean section. 2 Version after Braxton Hicks in the presence of a viable child deliberately sacrifices the life of that child, and has no place in modern obstetrics 3 The cervical and vaginal tampon and the interuterine use of rubber bags are safe and efficient means for controlling hemorrhage and for securing sufficient dilatation for delivery through the natural passages

DISCUSSION

Dr. E. Gustave Zinke, Cincinnati It is just as wrong to say that cesarean section is never indicated in placenta prævia as it would be to say that the only operation for placenta prævia is cesarean section When I read a paper on placenta prævia eleven years ago advocating cesarean section for that condition, I did not find a single supporter I was not the first to recommend it for placenta prævia That credit belongs to Lawson Tait I performed my first cesarean section for placenta prævia about two months ago A case of placenta prævia centralis in a normal uterus, in which the placenta has been formed in the normal way, in which the placental tissues do not penetrate the uterine musculature and in which the thickness of the uterine wall is uniform throughout, even at the placental site, will admit of dilatation, in many instances, without serious hemorrhages from the hands of a skilful obstetrician The situation is entirely different when we have a diseased musculature and a normal implantation of the placenta into the muscle of the uterus Then there is not the separation that there is in the other case, and hemorrhage is uncontrollable in spite of the best means of handling the case, whether the position be vertex, breech, transverse or what not. Then in cases of rigid os, when there are hyperplasia and possibly incipient malignancy which is not recognized at the time, dilatation does not take place until the patient continues to bleed, and the moment the obstetrician introduces his hand for the purpose of dilatation, the patient is likely to be brought to the verge of death before the child comes out of the uterus These are the cases for which I have recommended cesarean section

Dr. Miles F Porter, Fort Wayne, Ind If a woman is in good health and is known to be the possessor of a viable child at term, with a placenta prævia centralis, she can be given a better chance for her own life and that of her child by a cesarean section at the hands of a good man than she can by any so called obstetric procedure at the hands of the best obstetrician ever created

Dr John Norval Bell, Detroit I would take exception to the remark made by Dr Schwarz that cesarean section is not indicated in any form of placenta previa My remarks were directed entirely to placenta prævia centralis

Dr. Magnus A Tate, Cincinnati In a case of malignancy of a fibroid tumor complicating pregnancy, I would make a cesarean section for the malignant condition or for the fibroid tumor, and not for a case simply of placenta previa centralis One of the crying needs at present is for more trained obstetricians and fewer skilled surgeons

Dr. Channing W Barrett, Chicago I believe cesarean section for placenta prævia is much overdone in the hands of general surgically trained men I believe further, that if more of these cases fell into the hands of trained obstetricians, more would be treated through the natural route and fewer cesarean sections would be done

Dr Charles L. Bonifield, Cincinnati There is no branch of medicine more neglected in the medical schools of to day than obstetrics and if there were more trained obstetricians cesarean section would not be performed as frequently as it is There are certain cases, however, in which a skilled surgeon is better than a skilled obstetrician

Rapid Dilatation and Accouchement Forcé

Dr. Henry S Lott, Winston Salem, N C Delivery should be made in all cases of puerperal convulsions if the patient is at all near full term, on the appearance of even initial labor pains With strict asepsis and forcible, rapid dilatation, preferably manual, the application of forceps and delivery by the natural outlet are safest and will give the best results Delivery should be effected under ether, and with care and deliberation In the two cases of tear of the sphincter which *I report in my paper, I firmly believe that greater deliberation* in delivery would have lessened the extent of the injury

Puerperal Thrombophlebitis

Dr Palmer Findley, Omaha Ligation of the pelvic veins in this condition is correct in theory, but is yet in the experimental stage After reporting four cases, I submit the following propositions for consideration 1 Trendelenburg's operation is correct in theory, but is yet in the experimental stage. 2 It is contrary to my practice and to modern teaching to open the abdomen in the course of puerperal infection unless for drainage in general peritonitis, and I therefore view Trendelenburg's suggestion with misgivings 3 We are as yet unable to demonstrate clinically the extent to which the infection has traveled, and hence it follows that an exploratory incision must be the final resort in determining the extent of the infection, though even this may fail to give the desired information 4 The pelvic veins, including the iliacs, may not be thrombosed, yet the infection may attack the veins higher in the abdomen and beyond control, and even beyond inspection through an exploratory incision Furthermore, bacterial emboli may lodge in the lungs and elsewhere without the formation of thrombosed veins 5 The thrombosed veins may be secured and the infection later travel by other avenues and lead to a fatal issue 6 It is not always possible to demonstrate the presence of infected emboli which, when found, are viewed as contra indications to operative interference 7 I believe that the Trendelenburg operation will find a limited field of usefulness in obstetric surgery, but that the procedure is worthy of an extended trial

Dr K Isadore Sanes, Pittsburgh, Pa, read a paper in which he reviewed the literature on thrombophlebitis

DISCUSSION

Dr. R R Huggins, Pittsburgh, Pa. I believe that recovery occurs without operation or under palliative treatment in many cases of thrombophlebitis, but my experience shows six cases of the severe form of thrombophlebitis in the last twenty years, with five deaths, with palliative treatment I resolved two years ago that in my next case of septic thrombophlebitis I would explore the abdomen and see what the matter was I did this, and the patient recovered Since that time I have had three other cases, a total of four, with three recoveries The abdomen should be opened in the midline, which will give a good view of the veins in the pelvis and abdomen In my experience the operation does these patients no harm They stand it very well Even when there is an accompanying lymphangitis, I do not see any objection to operating, especially when the condition has extended along the ovarian veins under the retroperitoneal space, a position or place in the body which is most dangerous if the condition is allowed to progress If the veins are tied from within, it is easy to make an extramedian incision, push the peritoneum forward and drain behind the veins, or excise the ovarian veins down deep in the pelvis, and the operator will not only have ligated the source of infection, but will have drained the infected spaces, and the patient is much more likely to recover

Ectopic Gestation

Dr. Samuel W Bandler, New York It is difficult to make a positive diagnosis in many cases before the stage of hematocele, in some cases unless the hematocele is organized Vaginal incision is of value in making the diagnosis, and "blue shimmer" in the vesico uterine fold is important

The specimen shows an exceedingly small ovum not sufficiently large to fill the normally narrow lumen of the isthmian portion of the tube At this point the tube shows some anomalous features A muscular spur formation is present, causing a diverticulum to form with its blind end buried in the mesosalpinx, and on the mesial aspect of the point of nidation The ovum rests on and is imbedded in a muscular eminence to the distal side of the muscular spur, and is nowhere in connection with the diverticulum on the proximal side It projects into the lumen of the tube but is covered by tubal epithelium This covering is complete in the half nearest the uterus, but only partially in the half nearest the fimbria where it may be assumed to suggest a beginning intracapsular rupture, and a very early intratubal rupture

The embryo as such is not present It is represented by several large masses and streaks of trophoderm which lie near the trophoblast, and contains fresh blood in contrast to the rest of the coagulum There is as yet no true chorion formation Leukocytes are present underneath the base of the ovum between the loose muscle fibers, and nowhere else in the serosa, musculature or mucosa of the tube In view of the total absence of evidence of salpingitis this leukocyte infiltration can be assumed to indicate a secondary local reaction and not a primary inflammation

DISCUSSION

Dr J Henry Carstens, Detroit, reported a case of pregnancy which simulated extra uterine fetation or pus tube.

Injuries of the Pelvic Floor Resulting From Labor

Dr Fredrick Blume, Pittsburgh, Pa The public ought to be informed that injuries of the pelvic floor are unavoidable in the vast majority of cases, and that their repair is the end act of labor Careful examination and immediate repair should be the rule in ordinary cases If the tear extends into the bowel or through the sphincter, the operation may be done on the day following labor, with better light, assistance, etc. It is strange that even at the present time some obstetricians do not deem it necessary to repair the laceration, but leave the restoration of the pelvic floor to Nature

The Complete Absence of Milk in the Primipara

Dr Francis Reder, St Louis The causes that may bring about in the healthy woman a primitive agalactia in its extreme degree can be found in a very youthful motherhood, when normally a deficient development in the secreting cells may be expected It can be found in the motherhood of advanced age, in which normal atrophic conditions of the gland have caused extensive cell destruction A tendency to fatness sometimes completely inhibits the functional activity of the gland Furthermore, a tendency toward the masculine may seriously affect milk secretion and in rare instances be the cause of agalactia Physical influences, such as emotions of sudden onset, fright, shock, etc, are prone to bring on by their depressing reflex action on the sympathetic nervous system injurious influences that may inhibit cell activity in the organ In my paper I report three cases of agalactia in three primiparas In these the cause must be attributed to psychic influences inasmuch as there is no other discoverable factor to which the condition could be assigned It cannot be disputed that the nervous system exerts some influence on milk secretion It remains to be demonstrated whether or not such an influence is direct or indirect As the method of control for the action of hormones is also through the sympathetic ganglia, the shock which these primiparas suffered during their severe labor must be looked on as a potent factor in causing the agalactia

Moral and Ethical Aspects of Feticide

Dr E A Weiss, Pittsburgh, Pa A careful consideration of the moral aspect of feticide brings prominently to our attention several facts 1 The large number of abortions performed is becoming a serious menace to the health and welfare of our people 2 Such termination of human life is a most serious matter and every possible safeguard should be taken to restrict it 3 There seems to be a gradually increasing tendency on the part of the laity as well as the profession to take advantage of the law and teaching which permits and sanctions the induction of abortion 4. In most medical colleges a student has not positive teaching on the moral aspects of abortion, and he is allowed to work out his own ideas with regard to its ethical aspects 5 There is a gradual loss of respect for religious teachings which have always condemned the taking of the life of an unborn and unbaptized child as a sin and murder 6 Many, if not all the members of this Association, are teachers and leaders in obstetrics and gynecology in their respective communities, and the responsibility of this teaching rests with us I plead for a more humane view and consideration of the rights of the innocent unborn child.

(To be continued)

Medical Economics

This Department Embodies the Subjects of Post graduate Work Contract Practice Legislation Medical Defense and Other Medicolegal and Economic Questions of Interest to Physicians

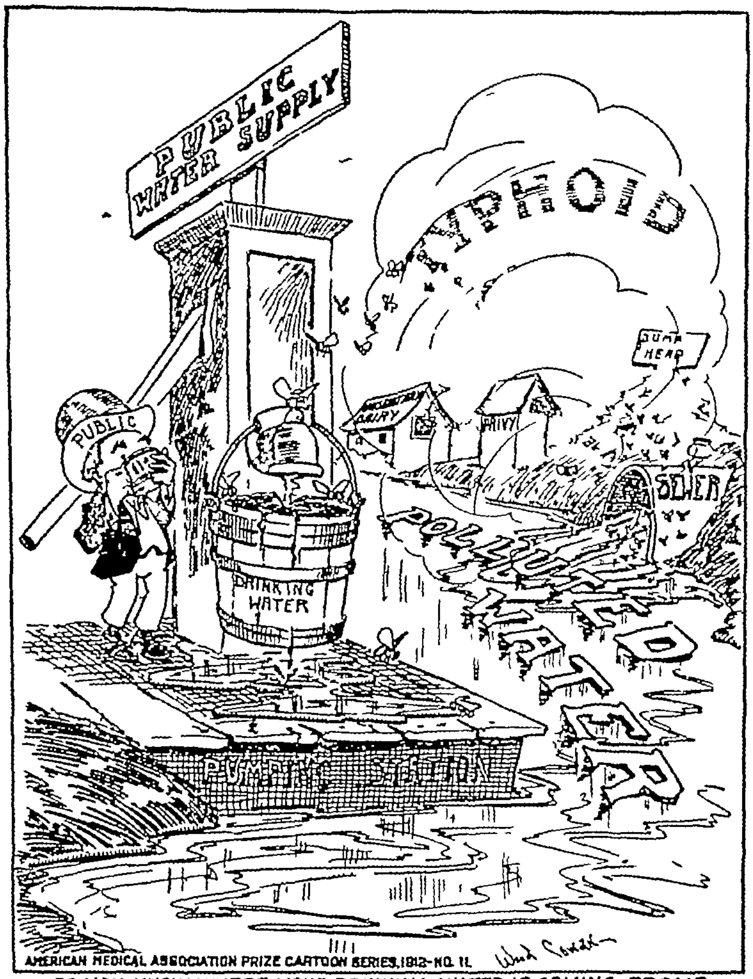
OUR NATIONAL HEALTH GUARDIANS

"Far from being taken by surprise by the approach of the plague, the officials of the Public Health Service have been expecting it for the past two or three years Knowing that it traveled the great commercial highways, they have followed its progress from what is apparently its permanent reservoir in China to port after port, tracing its course around South America and across the Spanish Main to Porto Rico Its appearance in San *Juan and Havana* was the signal for the adoption of exceptionally strict protective measures on account of the great volume of trade and the frequency of communication between these cities and the United States To meet and repel a threatened invasion by infectious disease is one of the every day achievements of modern medical knowledge working through the efficient organization of the Public Health Service"

This tribute in the *Outlook* is a terse summary of a prodigious amount of work on the part of our efficient guardians of the national health The public is recognizing these facts The more closely this work touches commerce the more appre*ciation* will be *given to* it For example, the ending of the *Outlook* editorial is as follows

"An occasion like the outbreak of bubonic plague close at hand serves to call attention, however, to the great economic value of this work as well as to its service in protecting the public health and affording mental security to the people of the country It shows also in a striking way the tremendous dollars and cents value of medical research, which is sometimes decried as of small practical importance Without the knowledge gained by experiments on animals to determine the cause of bubonic plague and the *methods of its transmission, the entire Atlantic and Gulf* seaboard would be cut off from communication with Porto Rico and Cuba at the present moment, with a consequent heavy loss to commercial interests from this suspension of business More than likely, indeed, our coast cities in such case would be grappling with serious outbreaks of the plague, and their terror stricken inhabitants would be isolated from the rest of the country as well as from the outside world Medical science *has* thus not only warded off a source of fear, but also contributed to the steadiness and prosperity of commerce"

The *Outlook* is right in regard to the importance of public health, and yet it here emphasizes the commercial side This is one indication among others that commerce is still more important in the national eye than is national health The day is coming when this will be changed—the physical welfare of the people will be placed first.



DO YOU KNOW WHERE YOUR DRINKING WATER IS COMING FROM?

THE CENTURY ON THE "MEDICAL TRUST"

Numerous newspaper comments have been quoted in this department during the last two years, indicating the trend of public opinion regarding national health legislation, and showing especially that the American people have not been particularly impressed by the cry of Medical Trust," raised against those physicians who have advocated better methods for health conservation. The source of these attempted slurs on the sincerity of the medical profession has been apparent An overwhelming majority of the American people is not yet ready to believe that *the* profession, in whose hands rest the lives and health of the people is attempting to establish any selfish monopoly, or to influence the public for anything except for the public good Probably the *Century Magazine* can be accepted as one of the most dignified and conservative representatives of periodical literature in the United States In its September issue under the heading of ' In Appreciation of tho Doctor," the editor of the Topics of the Time' department expresses what may well stand as the conservative, deliberate judgment of the intelligent public on issues which have now been before it for over two years

"As one cannot draw an indictment against a community so one cannot reasonably give sweeping approval of a profession, but now and then—perhaps in the lifting shadow of some dread illness happily surmounted,—one is moved to a new sense of the obligations under which we all rest to the physician Sometimes this is obscured by the conduct of those who 'don the livery of heaven to serve the devil in'—a class against whom the profession wages persistent warfare, but on the whole not even 'the cloth' presents a higher standard of service to humanity Sordid and base, indeed, must be the man who *can deliberately violate the solemn dedication of the Hippo*cratic oath to which he must subscribe before he is accorded his degree"

After quoting the oath, the editor continues

"And there is need of this vow, if society is not to go to pieces, for little as we know of the physician it is little of us that he does not know—our *foibles* and weaknesses our sins and sorrows—and rare is the man or woman who is not debtor to his skill, his sympathy, his cheer, and his loyal devotion It is always with a pang that we read of the death of such a doctor trusting that he may have received in his last days some repayment in kind for all that he has given of service to others

"In the memory of many such experiences it is with indignation that one hears the rank and file of this noble profession pilloried as 'the doctors' trust' by those opposed to the bill of Senator Owen for a national department of health It is not necessary to probe for the motives of those who are fighting this admirable measure Doubtless many, especially those of them who profess the faith of Christian Science, are conscientious, but nevertheless, under the banner of 'medical freedom,' they are playing into the hands of patent medicine manufacturers, adulterators of food, and medical charlatans, to the peril of the public health The Owen bill will merely extend to the whole country and make more effective the kind of sanitary guardianship which in the city of New York is accomplishing a progressive and astonishing reduction of the rate of mortality Imagine for a moment the department of health of this city and port discontinued it would not be forty eight hours before we should be exposed to physical dangers comparable only to the brood of Pandora's box

"The fact is that in the practical application of preventive medicine American physicians are acknowledged to be the leaders of the world They have not lost the primacy in this respect which twenty years ago led their confrères in Vienna to say 'We are astonished at your achievements over here we wait with impatience for the publication of your volumes' Twenty five years ago Mr Bryce in his great book, 'The American Commonwealth,' quoted the appreciation of 'competent authorities' of our contributions to biology and medical science.' 'Indeed, it is remarkable,' he said, 'how far from showy and sensational is the bulk of the work [in general science] now done in America' What must he say now of the great proportions which medical and surgical research have since attained! The pursuit of medicine in America fairly seethes with progress and interest It has all the zest of exploration. Millions of dollars are invested in the study of diseases once thought incurable, unrelenting warfare is waged on contagions, infections, and heredity, the education of the public on matters of health is systematic and thorough, and back of the professional honor which impels it all is a spirit of quiet altruism which is a better substitute for the knighthood of the Middle Ages Once more we say, gratitude and honor to the good physician!"

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA Phoenix October 7 8 Sec Dr John Wix Thomas

COLORADO Denver October 1 Sec Dr David A Strickler 612 Empire Building

GEORGIA Regular Atlanta October 8 10 Sec. Dr C T Nolan Marietta Homeopathic, Atlanta October 3 Sec. Dr R E. Hinman 100½ Whitehall St Atlanta

IDAHO Idaho Falls October 1 2 Sec. Dr O J Allen Bellevue

KANSAS National Hotel Topeka October 8 Sec Dr H A Dykes, Lebanon

MICHIGAN Capitol Bldg Lansing, October 8 10 Sec. Dr B D Harison 504 Washington Arcade Detroit

MINNESOTA State University Minneapolis October 1 Sec Dr Thomas S McDavitt Lowry Bldg St Paul

MISSISSIPPI Capitol Jackson October 22 23 Sec Dr W W Smithson

MISSOURI Coates House Kansas City October 1 3 Sec. Dr Frank B Hiller Jefferson City

MONTANA The Capitol Helena October 1 1912 Sec Dr William C Riddell

NEW JERSEY Capitol Bldg., Trenton October 15 16. Sec. Dr H. G Norton.

NEW MEXICO Santa Fe October 14 Sec Dr W E. Kaser East Las Vegas.

OKLAHOMA Muskogee October 7 9 Sec., Dr John W Duke Guthrie

RHODE ISLAND State House Providence October 3 Sec. Dr Gardner T Swarts.

UTAH Salt Lake City October 7-8 Sec Dr G F Harding 310 Templeton Building

WYOMING Riverton October 9 11 Sec Dr A B Tonkin.

Class C Colleges Not Recognized

Dr H A. Barbee, secretary of the West Virginia State Board of Health, reports that at a meeting of that board held in July, 1912 a resolution was adopted that candidates be not recognized for examination for license to practice medicine in West Virginia who have graduated after July, 1913 from any medical college, school or university whose standards are less than those recognized for Classes A and B by the Council on Medical Education of the American Medical Association Action to the same purpose has previously been taken by the licensing boards of Alabama, Louisiana, Minnesota, North Dakota, New Jersey and Rhode Island In the two states last named only colleges rated in Class A are recognized

Failures at the Michigan May Examination

Dr B D Harison, secretary of the Michigan Board of Registration in Medicine, says that through a misunderstanding two failures were omitted from his report of the May, 1912, examination, published in THE JOURNAL, August 31, p 740 Instead of only 44 being examined, all of whom passed, there were 46 examined of whom 44 passed and 2 failed. The failures were as follows

College	Year Grad.	Per Cent
FAILED		
Detroit Homeopathic College	(1910)	67 0
Laval University Quebec	(1902)	*

* Fell below 50 per cent in three subjects.

Michigan is one of the states which eliminates prior to the examination graduates from medical colleges which are not recognized by the board Others are also refused the right to take the examinations because of inadequate preliminary education Thus many candidates are rejected prior to the examinations who otherwise would doubtless swell the percentage of failures

Iowa June Report

Dr Guilford H Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Iowa City, June 6 8, and at Des Moines, June 13 15, 1912 The total number of subjects examined in was 8, total number of questions asked, 100, percentage required to pass, 75 At the examination held at Iowa City, the total number of candidates examined was 47 all of whom passed. The following colleges were represented

College	Year Grad	Per Cent
PASSED		
College of Physicians and Surgeons Chicago	(1912)	87 5, 88 7, 92 5
Northwestern University Medical School	(1912)	91
Chicago College of Medicine and Surgery	(1910)	79 4
State University of Iowa College of Medicine	(1912)	80 84 84 86 87 87 87 5, 88 88, 88 1 88 5 88 7 89 89 89, 89 5, 89 9 90 90 90, 90 90 7 91 91 5 91 6 91 7 91 9 92 92, 92 4 93 93 5 94 1 95
State University of Iowa, Homeopathic College	(1912)	88 1, 87 9, 91 2 92 5
Jefferson Medical College	(1912)	88 6 91, 91, 93 1

At the examination held at Des Moines, the total number of candidates examined was 55 of whom 50 passed and 5 failed Five candidates were licensed through reciprocity The following colleges were represented

College	Year Grad	Per Cent
PASSED		
Northwestern University Medical School	(1910) (1911)	89 4 83 2 83 4 83 6
Hahnemann Medical College and Hospital Chicago	(1912)	89 91
Bennett Medical College	(1912)	93 1
Chicago Coll of Med and Surg	(1908) (1911)	91 91 4
College of Physicians and Surgeons Chicago	(1912)	84 1 86 4 88 6 92 1 9[illegible] 4
Rush Medical College	(1899) (1903) (1911)	80 4 89 5 83 2 88 89
Drake University	(1912)	84 6 84 7 85 86 0 86 7 88 6 88.0, 88 9 89 89 4 89 7 89 9 91 7 92 95
Kentucky University	(1903)	88 9
Barnes Medical College	(1911)	75 4
St Louis College of Physicians and Surgeons	(1910)	79
St Louis University	(1911) (1912)	81 2 93 4
University Medical College Kansas City	(1912)	93 6
Washington University St Louis	(1912)	9[illegible] 1
University of Nebraska	(1912)	94 1
Jefferson Medical College	(1912)	87 9 90 0, 91 5 91 9, 93 2
Woman's Medical College of Pennsylvania	(1908)	91 2
Milwaukee Medical College	(1912)	78 6, 80 4
FAILED		
College of Physicians and Surgeons Chicago	(1912)	73 2
Hahnemann Medical College and Hospital Chicago	(1911)	69 9
State University of Iowa College of Medicine	(1897)	72 6
Keokuk Medical College	(1892)	39 3
St Louis College of Physicians and Surgeons	(1910)	57

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College	(1897)	Minnesota
University of Michigan, Dept of Med and Surg	(1908)	Michigan
St. Louis University (1911) Missouri	(1911)	Nebraska
Woman's Medical College of Pennsylvania	(1898)	Ohio

Virginia June Report

Dr Herbert Old, secretary of the Medical Examining Board of Virginia, reports the written examination held at Richmond, June 18 21, 1912 The total number of candidates examined was 17, total number of questions asked, 101, per centage required to pass, 75 The total number of candidates examined was 116 of whom 89 passed including 3 osteopaths and 27 failed including 1 osteopath Four candidates withdrew from the examination Six candidates were licensed through reciprocity The following colleges were represented

PASSED

College	Year Grad	Per Cent
Georgetown University	(1910)	80
George Washington University	(1912)	83 85
Howard University	(1911) (1912)	77 75 78
University of Louisville	(1911) (1912)	75 75
Hospital College of Medicine Louisville	(1903)	78
Johns Hopkins University	(1912)	83 91
Maryland Medical College	(1910) (1912)	76 75
University of Maryland	(1912)	77
Baltimore Medical College	(1900) (1912)	75 75 77
Leonard Medical School	(1911) (1912)	75 77 79 80
University of Pennsylvania	(1911) (1912)	77 79 82
University of the South	(1908)	75
Meharry Medical College	(1911) (1912)	75 76 78
Lincoln Memorial University	(1911) (1912)	75 77
University College of Medicine, Richmond	(1911) (1912)	79 75 75 75 77 78 78, 78 80, 80 80, 81 81 81 81 5, 82 83 84 86, 87
Medical College of Virginia	(1911) (1912)	75 76 78 75, 75 75 75 76 76 76 77 77 77, 78 79 79 80, 80 80 81, 81 81 81 82 82 83 84 86
University of Virginia	(1908) (1910) (1912)	81 75 75 79 83 84 85 88

FAILED

College	Year Grad	Per Cent
Georgia College of Eclectic Medicine and Surgery	(1912)	59
Louisville and Hospital Medical College	(1908)	46
Maryland Medical College	(1909) (1911)	66, 71 72.8
Leonard Medical School	(1910) (1911) (1912)	71 60 61 6 73 3 47 60 63 64 70 73 3
Jefferson Medical College	(1895)	68
University of West Tennessee	(1910) (1911)	60 58
Meharry Medical College	(1911)	50
Chattanooga Medical College	(1908)	46
University of the South	(1909)	73
Medical College of Virginia	(1911) (1912)	72 7 66 69 73 6
University College of Medicine Richmond	(1912)	70

LICENSED THROUGH RECIPROCITY

College	Year Grad	Reciprocity with
University of Louisville	(1908)	W Virginia
University of Maryland	(1910)	Maryland
College of Physicians and Surgeons Baltimore	(1911)	Maryland
University of Michigan Dept. of Med and Surg	(1894)	Michigan
Albany Medical College	(1895)	New York
Woman s Medical College of Pennsylvania	(1900)	Kentucky

Colorado July Report

Dr David A Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written and oral examination held at Denver, July 2, 1912 The number of subjects examined in was 8, total number of questions asked, 80, percentage required to pass, 75 The total number of candidates examined was 27, of whom 24 passed and 3 failed, including 2 osteopaths Sixteen candidates were registered on presentation of satisfactory credentials, including state licenses The following colleges were represented

PASSED

College	Year Grad.	Per Cent
University of Colorado	(1911) (1912)	75 2 84 7 78 9 79 7 80 4 81 4 83 83 1 84 1 84 3 84 4 84 9 85 2 85 4 86 4 86 9 87 6 87 7 88 2 92 2
Rush Medical College	(1912)	83 4
Chicago College of Medicine and Surgery	(1912)	86 1
Northwestern University Medical School	(1912)	92 8
Undergraduate		78 9

FAILED

College	Year Grad.	Per Cent
Howard University Washington D C	(1906)	62

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS

College	Year Grad	State Licenses
University of Colorado	(1911)	Wyoming
Northwestern University Medical School	(1906)	Penna
Rush Medical College	(1893)	Illinois
University of Louisville	(1911)	Kentucky
Baltimore Medical College	(1907)	Wyoming
University of Maryland	(1897)	Maryland
Harvard Medical School	(1910)	Maine
Barnes Medical College	(1902)	Missouri
Washington University St Louis	(1898)	Illinois
Albany Medical College	(1900)	Illinois
Miami Medical College	(1903)	U S Army
Western Reserve University	(1908)	New Mexico
Medical College of Ohio	(1889)	Iowa
Hahnemann Med Coll and Hosp Philadelphia	(1898)	Penna
University of Vermont	(1902)	Vermont
McGill University Quebec	(1885)	Iowa

The following questions were asked

ANATOMY

1 Describe in detail the lower end of the humerus 2. Describe the radius including muscular and ligamentous attachments. 3 Give the origin insertion and nerve supply of the following muscles flexor profundus digitorum adductor longus tensor vaginæ femoris tensor tympani and external rectus (of eye) 4 Name the muscles which extend the thigh 5 Name the branches of the axillary artery 6 Describe the arteries which supply the muscular tissue of the heart 7 Name the branches of the internal cord of the brachial plexus and describe one of them in detail 8 Name the vessels supplying the large intestine. 9 Give a short description of the floor of the fourth ventricle 10 Describe the pelvic floor

PATHOLOGY

1 Describe the pathology of arteriosclerosis 2 Locate and describe the changes in locomotor ataxia 3 Discuss *Spirochæta pallida* 4 Describe the most common tumor found in bone 5 Locate and describe the organic changes liable to arise from long continued suppuration. 6. Describe simple atrophy Give examples. 7 What pathologic changes are found in diabetes mellitus? 8 Discuss (not over one page) the post mortem findings macroscopically and microscopically of a case of diphtheria 9 Locate and describe the changes occurring in Bell s palsy (peripheral facial paralysis) 10 Discuss the pathology of gastric carcinoma

CHEMISTRY

1 Give the comparative significance of the following suffixes -ous ic ite ate 2 Define the terms, atomic weight atomic volume molecular weight and molecular volume 3 Name and differentiate the three classes of sugars 4 Define peptones and tell how produced. 5 Define chemical action physical action Give examples of each. 6. Discuss methods and principles of disinfection after contagious diseases. 7 How may the presence and the amount of urea be determined? 8 Name the metals whose salts are often taken as poisons 9 Give the chemical differences between chloral and chloroform 10 Give the chemistry of alcohols and ethers.

PHYSIOLOGY

1 (a) Name and describe two kinds of blood-corpuscles (b) What is hemoglobin? (c) Mention four functions of blood 2 Describe in detail the fate of a molecule of sugar after ingestion 3 (a) State action of the sympathetic and vagus nerves on the heart (b) Name two classes of vasomotor nerves. (c) Differentiate between arterial and venous flow 4 Describe the act of respiration and give its function 5 Name five digestive ferments and give function of each. 6 (a) Describe and give function of the lymphatic system (b) In what two ways does absorption take place in the alimentary canal? 7 Name five secreting organs and state what each secretes. 8. (a) State function of the kidneys. (b) Give chemical and physical composition of normal urine (c) How much is normally passed in twenty four hours? 9 Name the twelve cranial nerves and give their functions 10 Tell how voice is produced and varied

SURGERY

1 Discuss acute osteomyelitis 2 What are the symptoms and diagnosis of intestinal obstruction? 3 Give the symptoms and diagnosis of cerebral abscess 4 Describe a tuberculous abscess 5 Give the symptoms diagnosis and prognosis of fracture of the surgical neck of the humerus 6 What are the symptoms produced by gall stones? 7 What are the clinical characteristics of a malignant tumor? 8 Give the symptoms and diagnosis of tuberculosis of the shoulder joint 9 Discuss fractures of the upper third of the femur 10 Discuss congenital club foot

OBSTETRICS

1 Describe mechanism in vertex presentation 2. Describe mechanism in left occipito anterior presentation 3 Describe mechanism in face presentation 4 Briefly describe (a) breech presentation (b) transverse positions 5 Mention the varieties of hemorrhage that may affect the pregnant woman the parturient woman and the puerperal woman 6 What is placenta prævia? Give its causes, varieties symptoms and treatment 7 Name indications for high forceps and (b) low forceps and briefly describe the conditions necessary for their use 8 How would you diagnose the position of the child (outline form)? 9 Give indications and describe in detail manual aid 10 (a) Give the indications and conditions requiring cesarean section (b) Describe Sanger s modification

TOXICOLOGY

1 Give symptoms of an overdose of conium maculatum 2 Give treatment of an overdose of conium maculatum 3 Give post mortem appearance of an overdose of conium maculatum 4 Give symptoms of poisoning by aconite 5 Give treatment of poisoning by aconite 6 Give post mortem appearance of poisoning by aconite 7 Give symptoms of an overdose of nitric acid 8 Give treatment of an overdose of nitric acid 9 Give post mortem appearance of an overdose of nitric acid 10 From a medical standpoint define toxicology

SYMPTOMATOLOGY

1. Give the causes and symptoms (including the character of the urine) of acute nephritis 2 What are the symptoms of rheumatic fever? 3 Describe a case of erysipelas 4 What are the symptoms and commonest complications of diphtheria? 5 Give the symptoms and signs in a case of incipient pulmonary tuberculosis 6 Describe a case of croupous pneumonia 7 If an embolus arises from the saphenous vein where will it lodge and what symptoms will it cause? 8 If an embolus arises from the mitral valve where may it lodge and what symptoms will it cause? 9 Describe a case of acute poliomyelitis 10 Describe a case of paralysis agitans.

Book Notices

Deformities Including Diseases of the Bones and Joints A Text Book of Orthopedic Surgery By A H Tubby M S (Lond) F R.C S (Eng) Surgeon to and in Charge of the Orthopedic Department Westminster Hospital Second Edition Two Volumes Cloth. Price $6 net. Illustrated. New York Macmillan Company 1912.

This edition of Tubby's work is issued in two volumes The section on deformities is especially comprehensive and complete In the chapter on torticollis the theories of the pathogenesis are considered in detail, and the treatment suggested is based on a careful analysis of the conditions The deductions drawn from comparative results following the various methods for the treatment of congenital dislocation of the hip are moderate but convincing The chapter on club foot contains a good classification of this condition The subject of sclerosis of the spine is not so well treated Coxa vara and coxa valga are considered at some length and the *x* ray plates used for illustration are excellent In considering the etiology of tuberculosis of bones and joints reference is frequently made to the report of the Royal Commission on Tuberculosis The treatment of sinuses by the use of Beck's paste is referred to The section devoted to a consideration of tuberculosis of bones and joints is very complete. In the discussion of arthritis deformans nothing is said of the newer theories that the condition may be due to some local focus of infection such as tonsils, cholecystitis, etc Many very clear *x* ray plates are used to illustrate cases of malignant tumors of bone The full bibliography at the end of the chapters makes the work a valuable one for reference and this plan should be commended As a whole the edition recommends itself to the students of orthopedic surgery Mechanically the work is well done the numerous *x* ray plates being extremely clear and illustrative

Franklin's Contribution to Medicine. Being a Collection of Letters Written by Benjamin Franklin Bearing on the Science and Art of Medicine and Exhibiting His Social and Professional Intercourse with Various Physicians of Europe and America. By Theodore Diller Cloth. Price $2. Pp 89 Brooklyn Albert T Huntington 1912.

This little book contains an essay which was read in abstract before the Pittsburgh Academy of Medicine, which requested the author to publish it in full We are given a brief but succinct account of Franklin's life His close relationship to medicine and to the medical profession is clearly outlined by extracts of his correspondence and by accounts of his participation in the foundation of the Pennsylvania Hospital and the birth of the first medical school in this country His discovery of Franklinic electricity his invention of bifocal spectacles his valuable hygienic teachings, his views as to the contagiousness of colds, and the substantial character of his discussions of various medical topics are set forth largely in his own words by extracts of his correspondence and writings Though he was not a physician Franklin's contributions to medicine are hardly equaled by any American medical contemporary, and Dr Diller's book is a valuable addition to our literature because it gives us an adequate idea of the medical services of this great man. The book should have been provided with a title on the back of the cover

Die Lungensaugmaske in Theorie und Praxis Physikalische Behandlung von Lungenkrankheiten Blutarmut Keuchhusten Asthma Kreislaufstörungen und Schlaflosigkeit Zusammenfassende Ergebnisse aus Literatur und Praxis Von Dr E. Kuhn Paper Price 1 mark. Pp 25 with 24 illustrations Berlin Julius Springer 1911

This is a monograph of about thirty pages on the use of a mask the object of which is to produce a hyperemia of the lungs The author believes that the hyperemia thus produced acts favorably on a variety of conditions, from tuberculosis to whooping cough and from auto intoxication to heart disease Directions for using the mask are not given, but the author says that such directions will be found accompanying each mask, which reminds one somewhat of the directions found around a bottle of patent medicine. A little more evidence than that presented will be necessary to establish for the mask a prominent place as a therapeutic agent

Medicolegal

Special Liability of Sellers of Morphin to Married Persons

(Flandermeyer vs Cooper (Ohio), 98 N E R 102)

The Supreme Court of Ohio holds that one who with knowledge that a husband by the constant and continued use of morphin has become so weakened in body and mind that he is unable to resist his cravings for the drug, and who after the repeated protests of the wife continues to sell morphin to the husband until by the use thereof his mind becomes so impaired and destroyed that it is necessary to confine him in an insane asylum, is liable to the wife for damages for her loss of consortium And in this case a judgment for $500 in favor of the plaintiff, Mrs Cooper, is affirmed

The court says that there can be no reasonable contention but that the wife suffers the same injury from the loss of consortium as the husband suffers from that cause His right is not greater than hers Each is entitled to the society and affection of the other This right is invaded whenever a third person, through machination, enticement, seduction or other wrongful, intentional and malicious interference with the marriage relation deprives the husband or wife of the consortium of the other The remedy for an invasion of these rights is not in the nature of the action for damages to means of support provided by the statutes relating to the sale of intoxicating liquors No enabling statute is necessary to authorize the maintenance of an action for the loss of consortium Moreover, the plaintiff's rights under the facts and circumstances of this case rested on a broader foundation than the violation of the state statutes regulating the sale of this and kindred poisons, for if in the making of the sales in question these statutes had been observed to the very letter, the sale might nevertheless be unlawful, and the defendant responsible to the plaintiff for the injuries complained of

Mr Cooper had been a victim of the morphin habit for many years, and if it be conceded that after he became cured of the habit of using morphin he possessed sufficient intelligence and discretion to control his own actions and safeguard his own welfare, and that under these conditions the defendant had a legal right to disregard the appeal of the wife and to sell morphin to the husband on the theory that the independent act of the husband of injecting it into his veins was the proximate cause of the injury complained of, yet the evidence was very clear that there came a time in the history of these sales when he was no longer a free agent capable of controlling his own conduct and capable of exercising an independent judgment in reference to the use of the drug, but, on the contrary, his intellect had become so weakened and infirm that his power of resisting his craving was entirely destroyed and he became merely the instrument, or the conduit through which this treacherous poison was transferred from the druggist's hands into his own system It would be just as reasonable to say that due regard for the rights of others would not require the individual in the ordering of his own affair to take into account the force of gravity, as to say that one, who sells morphin to a person known by the seller to be a helpless victim of this drug, is not required to contemplate the natural and probable result of the use the unfortunate purchaser is sure to make of it

What Courts Will Not Require of Expert Witnesses Nor Compensate Them For

(People vs Conte (Cal.) 122 Pac R 450)

The District Court of Appeal, Third District, of California says that in this homicide case counsel for the defendant called a physician to the witness stand and asked him to examine a certain rock and say, by a mere inspection and without a microscopic examination or other scientific analysis of some spots on the rock whether they were blood stains thereon The physician refused to testify as an expert unless he was guaranteed the usual fee for such services, and counsel for the defendant requested the court to make an order for the payment of such fee out of the county treasury, declaring that his client was without the means to defray that expense This the court refused to do After considerable colloquy between court and counsel, the latter was ordered by the court to put the questions to the witness that he desired to ask, but counsel seemed to insist that some arrangement be first made for the payment of the physician for his services as an expert witness, and that thereupon the latter be given possession of the rock for the purpose of making such an examination thereof as would enable him to determine and say whether the marks which a woman declared were blood stains were or were not caused by human blood The court denied this request The court of appeal thinks that the court's action in this matter could not be made the predicate of prejudicial error

The court of appeals says that at the trial the woman referred to testified that the marks which she took for blood stains had undergone such a change in appearance that she could not then say that they were the result of blood stains, and it was highly probable that, under such circumstances, the physician could not have determined any more than could a lay witness, in the absence of an appropriate chemical analysis of the marks, whether they were caused by blood or produced by some other cause This court is familiar with no law requiring the court under such circumstances to order the services of an expert witness in behalf of a defendant to be compensated for out of the public funds The court has no doubt that the physician, having been sworn as a witness, could have been required to answer such pertinent questions as might have been put to him, notwithstanding that they might call for expert testimony, and the physician not recompensed or guaranteed compensation for his services as an expert, but the court knows of no rule of law which would have authorized the court to compel him to go to the trouble and perhaps some expense of scientifically investigating the cause of the marks on the rock for the purpose of qualifying himself to give expert testimony on that subject.

A rehearing in the Supreme Court of California was denied by the latter

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

Illinois Medical Journal, Springfield

September XXII No 3 pp 277 416

1 Life and Work of Dr Daniel Brainard E F Ingals Chicago
2 Menace to Public by Feeble Minded Persons Living Outside Institutions T Diller Pittsburgh
3 Border Line Inferiority C F Read Kankakee
4 Segregation and Treatment of Feeble-Minded. J Punton Kansas City Mo
5 Feeble Minded and Epileptic H M Cary Pennhurst Pa
6 Criminal Insanity C H Anderson Menard Ill
7 Research in Psychiatry B Holmes Chicago
8 Tonsillectomy in Children G W Boot Chicago
9 Relation of General Practitioner to Fight Against Tuberculosis O W McMichael Chicago
10 *Tuberculosis of Patella J B Murphy Chicago
11 Antiformin Sedimentation Method of Sputum Examination for Tubercle Bacilli A I Murphy and J B Rogers Naperville
12 Nystagmus L H Mettler Chicago
13 Acute Inflammation of Thyroid O J Stein Chicago
14 Anterior Poliomyelitis J H Bacon Peoria
15 Treatment of Cancer High in Rectum C B Davis Chicago
16 Importance of Early Recognition and Treatment of Pathologic Conditions of Adenoids and Tonsils. C J Whalen Chicago

10 **Tuberculosis of Patella**—Murphy says that there is about one case of tuberculosis of the patella to twenty or twenty five cases of tuberculosis of the knee joint When tuberculosis is present in the patella, it takes one of two courses It may extend to the surface and rupture through the skin, forming a sinus leading outward from the tuberculous focus in the patella The greatest tendency, however, is for the disease to pass inward and attack the joint The patella is separated from the joint by a thin cartilage, and that cartilage readily yields as the tuberculosis approaches the joint The tubercular focus ruptures into the knee joint and causes a greater or lesser degree of synovial tuberculosis It may involve the other bones secondarily In one of the two cases reported by Murphy, the patella was almost completely destroyed by the disease In the other case there was a pathologic fracture, with considerable separation of the fragments

In figuring out the treatment of these cases Murphy adopted the plan of making an incision along the outer side of the patella up into the vastus externus, removing the entire patella from beneath the aponeurosis patellæ then dividing the quadriceps tendon by two parallel incisions extending upward from the two parallel incisions above and swinging this flap down over the site of the patella and attaching it by suture to the ligamentum patellæ In investigating why better results were obtained by treating these fractures ten or twelve days after the initial trauma, the explanation given originally was that the tissues, which had been recently traumatized, were not in a condition to withstand infection that they were not in as good condition to withstand infection as in the case of a primary operation on the knee joint, or not in as good condition to withstand an operation as after the occurrence of the traumatic inflammation Why? Because following a traumatic inflammation, there occurs an intense infiltration, the bone is thickened, with cofferdammed lymphatics The tissues have reacted to the traumatic inflammation, and offer the greatest resistance against microbic invasion That, Murphy believes, is the explanation

Primary wiring of the patella has been abandoned, and secondary wiring of it has been considered a proper and legitimate operation In his cases Murphy prepared the knee joint by aspiration, and injected 3 drams of a 2 per cent solution of liquor formaldehyd in glycerin which produced a severe reaction in the joint. Shortly after this the effusion and pain subsided, and a week from that time he opened the joint and operated There was no effusion into the joint after the operation There was no filling of the joint There was no elevation of temperature no inflammatory reaction, and he succeeded in getting a good result in both cases

Military Surgeon, Washington, D C

September XXVI No 3 pp 239 306

17 What Are Best Available Measures to Diminish Venereal Diseases Among Soldiers and Sailors and Along What Lines Should We Seek the Cooperation of Federal State and Municipal Authorities? I M Rogan U S Navy
18 Dementia Præcox and Chronic Alcoholism L L Smith U S Army
19 Bedbug As Carrier of Typhoid R F Riggs U S Navy
20 Ocular Diseases Incidental to Advanced Life Considered in Connection With Claims for Pensions L W Fox U S Army
21 Six Hundred Cases of Measles Occurring at Columbus Barracks Ohio E D Kilbourne U S Army
22 Fevers of Undetermined Causation F R Whitmore U S Army
23 Gunshot Fracture of Both Bones of Forearm Recovery G A Skinner U S Army
24 Purification of Water by Means of Darnall Filter L H Reichelderfer U S Army
25 Simple Marker Set for Solution of Medical Field Problems M A W Shockley U S Army
26 Ants Destroying Larvæ of Flies G P Stallman U S Army

West Virginia Medical Journal, Wheeling

September VII No 3 pp 71 108

27 Obligation of Public to Medical Research Laboratories F L Hupp Wheeling
28 Diagnosis and Treatment of Some of Commoner Forms of Kidney Disease L F Barker Baltimore
29 Microscope as Aid to Diagnosis J W Lyons Huntington
30 Drug Addiction Cell Destruction Its Pathology J W Williams Richmond Va
31 *Improved Maxillary Splint W P Megrall Wheeling

31 **Improved Maxillary Splint.**—About 1¼ inches from each end of the Levis maxillary splint drill two crescentric holes, about 1 inch long and ⅜ of an inch wide, are punched ⅜ of an inch apart, parallel with each other and with axis of the splint The end of a half yard strip of bandage is passed through one of these holes and out through the adjacent one, and another strip of bandage placed similarly in the other end of splint then after the splint is applied to the fracture the end of one strip of bandage is tied behind the neck to its fellow of the opposite side and the other two loose ends are tied over the top of the head, as is usual with the "four tailed" bandage Secured by this very easy and simple method the splint is held firmly in place, with no danger of it becoming loose, neither is any additional bandaging required

Ohio State Medical Journal, Columbus

September VIII No 9 pp 459 503

32 Complement Fixation Test for Obscure Gonococcic Infections E O Smith Cincinnati
33 Mesenteric Ileus W J Gillette Toledo
34 Office Treatment of More Common Ano Rectal Diseases. W Teachnor Columbus
35 Sewage Purification W C Folsom Cincinnati
36 Present Status of Feeding Young Children E S Everhard and G Felker Dayton
37 Choice of Anesthetics from Standpoint of Surgeon With Special Reference to Nitrous Oxid and Oxygen R. E Skeel Cleveland

Journal of Experimental Medicine, Lancaster, Pa.

September XVI No 3 pp 249 394

38 *Nature of Bactericidal Substance in Leukocytic Extract. W H Manwaring New York
39 *Pure Cultivation of Spirochæta Phagedenis (New Species), Spiral Organism Found in Phagedenic Lesions on Human External Genitalia H Noguchi New York
40 *Studies in Ferment Action II Extent of Leukocytic Proteolysis J W Jobling and S Strouse Chicago
41 *Comparison of Simultaneous Polygraph and Micrograph Tracings F S Mearn H Coffen and A C Crehore New York
42 Study With Electrocardiograph of Mode of Death of Human Heart G C Robinson New York
43 *Nitrogen and Nuclein Metabolism in Gout. P A. Levene and L Kristeller New York
44 *Duration of Immune Bodies in Blood After Antityphoid Inoculation M Wollstein New York
45 Post Hemorrhagic Anemia L S Milne New York
46 Complement Fixation in Syphilis With Spirochete Culture Antigens C F Craig and H J Nichols U S Army
47 Retention of Foreign Protein by Kidney R M Pearce Philadelphia
48 Relation of Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. R M Pearce, J H Austin and E B Krumbhaar, Philadelphia
49 *Idem R M Pearce, J H. Austin and A B Eisenbrey Philadelphia

38 **Bactericidal Substance in Leukocytic Extract**—The bactericidal agent extracted from horse leukocytes, Manwaring found, is apparently precipitated quantitatively by full saturation with ammonium sulphate The bactericidal agent is apparently precipitated by absolute alcohol, and is not rendered insoluble by a short contact with alcohol The agent resembled in this feature certain enzymes which can be isolated and purified by alcoholic precipitation

39 **Pure Cultivation of Spirochæta Phagedenis.**—A hitherto undescribed spiral organism has been isolated by Noguchi in pure culture from a case of mild phagedenic ulcer on the external genitalia of a woman For this organism the name *Spirochæta phagedenis* is proposed *Spirochæta phagedenis* is a strict anaerobe and grows in the presence of fresh tissue in ascitic agar It produces no apparent change in the media, but a somewhat offensive odor develops in the culture tube *Spirochæta phagedenis* incites a slight inflammatory reaction in the skin of a *Macacus rhesus* monkey and in the skin and testicles of rabbits Its etiologic relation to the phagedenic lesions on the external genitalia has not yet been determined

40 **Studies in Ferment Action.**—The authors believe that their work proves that the proteolytic action of leukocytes is not a simple cleavage by one ferment There are present two proteases, one acting in an alkaline medium and the other in an acid medium This confirms Opie's work In the leukocytes there was found in addition an ereptic ferment which is capable of acting in an acid or alkaline medium Since this action is lost by heating to 70 C, and by drying and keeping the leukocytes, it probably represents a ferment which acts on the digestion products of the two proteases Analogy with other ferments in the body confirms this opinion

41 **Polygraph and Micrograph Tracings.**—From a study of a considerable number of tracings the authors conclude that the delicate mechanism of the micrograph registers the movements in the heart and blood vessels more accurately than does the polygraph The inertia of the polygraph lever and diaphragm distorts the tracing The difference between the results obtained with the two instruments is shown by the records made simultaneously with the micrograph and the polygraph The micrograph is particularly useful for recording heart sounds Some records illustrating this are shown The authors are directing special attention to this and will report the results in a subsequent paper While the micrograph will not supersede the polygraph or electrocardiograph, they feel that it has distinct possibilities as a clinical instrument

43 **Nitrogen and Nuclein Metabolism in Gout.**—The observations recorded by Levene and Kristeller were made on a patient in a very advanced stage of gout Very large gouty deposits in nearly all joints prevented him from any active movements The patient was at first placed on a daily diet containing about 6 grams of nitrogen When the daily output became fairly constant (about 5½ grams), the experiments were begun These consisted in the addition of urea to the normal diet The urea was added to the first morning meal and the nitrogen output was followed in twenty four hour periods, day by day In a similar manner experiments were carried out with asparagin, plasmon, uric acid and nucleic acid It was observed that after the administration of very simple nitrogenous substances, such as urea and asparagin, the patient did not remove the surplus nitrogen in the same manner as a normal individual, or even as the patient with granular nephritis who was placed on a low nitrogen intake The increase in the nitrogen output was comparatively low during the first twenty four hour period, and this slightly increased excretion usually continued for several days

This suggested a comparison of the character of nitrogen elimination when the patient was placed on a daily diet containing about 13 grams of nitrogen On this diet, after administration of urea, the rise in the nitrogen output took place with greater rapidity and with greater intensity than on the low protein diet Also the nitrogen output in the intervals between the experiments appeared to be more uniform than when the patient had been on a low protein intake For this reason it was decided to perform a new series of experiments, placing the patient on a diet abundant in nitrogen But even under these conditions the increase in the output of nitrogen, after the administration of additional nitrogenous substances, was very low and protracted This made it difficult to detect the differences in the output during the intervals between experiments and during the days of the experiments

A new series of experiments was then performed, in the course of which the additional nitrogenous products were added, not during one day, but during three or four consecutive days, and the output of nitrogen was followed in twenty four hour periods for a number of days But this change in daily nitrogen intake brought little change in the results of the experiments, for the increase in nitrogen output after the administration of nitrogenous substances was rather insignificant and the excretion was very often protracted. For the sake of convenience, therefore, it was decided to estimate the increase in the nitrogen output during the days of the experiment and during the two days following the experiment

While the patient was under observation, which was for three winter terms, it was noticed that after the administration of purin bodies, the nitrogen output in animals had a more regular course if they received simultaneously considerable quantities of sodium bicarbonate It was, therefore, decided to repeat the experiment on the patient, administering to him daily 15 grams of this salt It seemed that under these conditions the patient removed the surplus nitrogen intake with greater rapidity than without the bicarbonate of soda

44 **Duration of Immune Bodies in Blood.**—In a series of twenty four persons inoculated by Wollstein with antityphoid vaccine, the immune bodies in the blood reached their height within two months after the first inoculation, or one month after the third, then fell rapidly within the next two months Only nineteen of the cases could be followed longer, and eight of these were negative for bactericidins within ten months after inoculation, and fifteen were negative after thirteen months. Only one serum reacted in a dilution of 1 to 1,200 at the end of thirteen months The addition of lecithin to the vaccine did not influence the local reaction after inoculation, nor did it appreciably affect the formation of immune bodies to the typhoid bacillus

49 **Blood Destruction and Regeneration**—The results of this study are stated as follows Rapid injection of more

than 0 06 of a gram per kilo of hemoglobin intravenously into a normal animal is followed by the appearance of hemoglobin in the urine (pelvis of kidney) within eight to ten minutes After rapid injection of more than 0 012 of a gram per kilo per minute of hemoglobin, 16 to 36 per cent of the total amount, if this equals 0 25 of a gram per kilo is eliminated in the urine and is accompanied by choluria If the injection of not more than 0 35 gram per kilo is made slowly (less than 0 01 gram per kilo per minute), the amount eliminated in the urine is only 2 33 to 9 5 per cent of the total amount injected, and choluria does not occur The concentration of free hemoglobin in the blood which constitutes the threshold value of the kidneys for hemoglobin is approximately 0 06 gram of hemoglobin per kilo of body weight When about this concentration is reached, hemoglobin appears in the urine The amount of hemoglobin per kilo of body weight which, after rapid injection, may be retained without jaundice, is approximately 0 18 gram When 0 22 or 0 23 gram is retained bile pigments appear in the urine The threshold of the liver for jaundice in point of hemoglobin saturation lies, therefore, between 0 18 and 0 22 gram per kilo of body weight With slow injections a greater amount may be retained without choluria

The absence of the spleen does not alter greatly the percentage of hemoglobin eliminated by the kidney, nor does it raise the threshold of the liver for jaundice In the presence of jaundice, either hemolytic or obstructive, the amount of hemoglobin retained by splenectomized animals is slightly diminished and that eliminated by the kidneys is correspondingly increased

On these data the authors base the following explanation of the mechanism by which free hemoglobin is removed from the blood serum Hemoglobin is not removed by the kidney until its concentration in the blood serum reaches a certain level (0 06 gram of free hemoglobin per kilo of body weight) This constitutes the threshold value of the kidneys for hemoglobin and when it is reached hemoglobin appears in the urine When the concentration is lower, hemoglobinuria ceases, at the same time, however, the liver, and possibly other tissues, take up hemoglobin as soon as mere traces are present in the serum and they continue this removal whether the renal threshold is exceeded or not The two processes go on simultaneously, the rate of removal, when the renal threshhold is exceeded, being for the kidneys 17 to 36 per cent., and for the liver and other tissues 64 to 83 per cent. of the total amount introduced The hemoglobin which is removed by the liver is transformed into bile pigments If the amount reaching the liver is small and is received slowly, the amount of bile formed is not increased above the excretory capacity of the liver, and it is removed by the bile passages without the occurrence of choluria This is shown in their experiments in which injections of hemoglobin were made more slowly than 0 01 gram per kilo per minute On the other hand, if the hemoglobin is taken up by the liver rapidly and in large amounts, the bile capillaries are overtaxed and the bile cannot be rapidly removed, but is reabsorbed into the blood, and choluria develops.

If this theory is correct it affords an explanation of those instances of blood destruction in man characterized by jaundice, but not accompanied by hemoglobinuria In a slow, gradual destruction of red blood cells, the liver removes the hemoglobin from the serum so rapidly that the concentration of hemoglobin in the serum does not reach the threshold value of the kidneys and hemoglobinuria, therefore, cannot occur The constant absorption of large amounts of hemoglobin by the liver and the increase in bile formation which results does, however, overtax the bile passages and jaundice occurs. In the same way may be explained the continuance of jaundice after the disappearance of a transient hemoglobinuria.

Northwest Medicine, Seattle

September, IV No 9 pp 261 292

50 Workmen s Compensation C A Pratt Tacoma Wash
51 Diagnosis of Surgical Lesions from Standpoint of General Practitioner R H Fowler Brooklyn
52 Disinfectants and Disinfection E I Fick, Seattle
53 Bubonic Plague B J Lloyd, Seattle
54 Uncinariasis S. C. Slocum Portland Ore.
55 Convergent Strabismus in Children and Its Treatment. J L. McCool Portland Ore
56 Bacteriology of Diphtheria R. W Ashley Salt Lake City Utah
57 Anatomy of Anal Canal and Its Bearing on Etiology and Treatment of Some Common Rectal Diseases. A. C Crookall Seattle

American Journal of Urology, New York

September VIII No 9 pp 455 510

58 *Conclusions Drawn from One Hundred Prostatectomies O C Smith Hartford Conn
59 Phimosis Its Relation to Some of More Frequent Genito Urinary Diseases. W S Reynolds New York
60 *Sigmoido-Vesical Fistula Report of Two Cases J L. Boehm and J M Dean St. Louis
61 Dilatation Irrigation and Medication of Urethra With a New Sound A L. Soresi New York
62 Two Cases of Chronic Cystitis of Unusual Origin (Cystitis Cystitica and Leukoplakia Vesicae) J E Zipser New York

58 **One Hundred Prostatectomies**—In relation to the etiology of the senile prostate, Smith concludes from the histories in this series of 100 cases that Neisserian infection and chronic urethritis are factors of comparatively rare incidence, rather than predominating, as earlier literature would lead us to believe As to spheres of life and occupational incidence, he feels that no definite conclusions can be drawn. His patients have come, as a rule, from the upper walks of life have included a number of professional men of comparatively sedentary habits, and a number of farmers, a few mechanics, but no laborers in the usual acceptance of the term This may be largely due to the fact that this class do not live to the age incidence of prostatic disease The pathology of the prostates removed shows at least 16 per cent to have been malignant, this series including one sarcoma, and 2 per cent. to have been tubercular The balance, or 82 per cent have been benign growths, the increase in glandular, muscular and fibrous tissue varying greatly in different specimens A few of the earlier cases, which looked benign, escaped critical microscopic examination. Undoubtedly more thorough pathologic work would have given a somewhat higher percentage of malignancies

This series of cases is divided into four sub series of twenty five each, these divisions marking changes in the technic and advances in preliminary preparations and postoperative treatment, and the wiser selection of operative risks The first twenty five cases were performed through a median perineal incision, the prostate being drawn down by the rubber tractor of Parker Sims. Practically all the cases were in the third stage of the disease, that is, either suffering from complete obstruction and sepsis, or from the terminal conditions of hemorrhage urinary extravasation, pyelitis, cardiovascular changes, emaciation and failing health For this series of twenty five, the fatalities attributable to operation were four, three of the four deaths being due to postoperative pneumonia, and one to intestinal infection The operations were frequently performed in emergency at the homes of the patients in some instances in remote regions The rectum was injured twice during this series, an accident which has not occurred during the following seventy five cases Stones were left in the bladder or formed soon after operation in two cases Epididymitis occurred in 15 per cent Of these twenty five patients operated on between eight and ten years ago, 50 per cent. are still living, a number of them over 80 years of age

The second series of twenty five was performed by the perineal route, by the dissecting method of Young The mortality attributable to operation for this series was six, one death being from pneumonia one from cerebral effusion one from cardiac failure, one from septicemia from urinary infiltration one from shock and hemorrhage and one from anuria To the after treatment was added forced water drinking the earlier removal of the drainage tube continuous irrigations for a varying period in the cases of badly infected bladders, and the patients out of bed at an earlier date The third series of twenty five were performed by the perineal route without the use of a bladder tractor and by the median perineal incision and digital enucleation with the ungloved finger But one death occurred [illegible] was due to a remote cause.

60 **Sigmoidovesical Fistula.**—For two years the authors' patient complained of pain in the left lumbar region and had passed blood from the bowels at times, attributing this to hemorrhoids Soon after this she noticed some pus passing with her stool Pain was never constant Since passing pus from the bowels she had more distress in the lumbar region Three weeks preceding her first visit she passed about a pint of blood from her urethra This was about a week after menstruation had ceased From that time on the pains were constant and severe, and excruciating when the bowels moved, especially in the bladder and urethra She took frequent laxatives, as magnesium sulphate and citrate, these would increase the urethra pain on urination

The clinical history reads Frequent desire to urinate, with no relief after micturition Passes an ounce or less each time and arises at least three times each night to micturate Feels as if bowels want to move very frequently Straining at stool constantly, she says she feels as if some obstruction is near the anus She passes fecal matter per urethram, molded in a shape conforming to urethra Severe pains radiating to lumbar region starting in left iliac fossa, and also down the thigh to the knee One of these attacks was like a renal colic Hot and local applications gave no relief Eating of foods rich in cellulose, such as beans, etc, produced more distress

Vaginal examination showed a rectocele and vesicocele, no fistulous communication between the vagina and bladder or bowel Bladder catheterized showed thick purulent urine mixed with fecal matter After washing bladder a long time they succeeded in getting a return flow fairly clear, and then cystoscoped, showing a most severe cystitis diffused throughout the bladder, with large areas of denudation In the extreme upper left angle of the fundus was noticed a dark area, thought to be a pocket, and on moving the cystoscope up near it the beak of the instrument entered this space Realizing that they had a hole in the bladder wall, an assistant was asked to insert a rectal tube and inject methylene blue solution into the bowel which showed that the blue solution quickly trickled into the bladder Abdominal section disclosed adhesion between the sigmoid flexure, left fallopian tube and bladder A large sinus existed between the bladder and sigmoid through which the tip of the little finger would pass, and fecal matter was escaping into bladder The sinus was resected by removing the sigmoid and portion of the bladder The upper end of the colon was united to the rectum The opening of the bladder was difficult to close on account of the wall being so indurated The defect in the bladder was closed by suturing the fundus of uterus to the bladder Bladder was drained by catheter Patient succumbed to peritonitis three days after operation

Journal of Maine Medical Association, Portland

September, III No 2 pp 931 974

63 Conservation of Cardiovascular System H A Milliken Hallowell
64 Leukemia G A Coombs Augusta
65 Contagious Diseases. G H Coombs Waldoboro.
66 Worry W F Hart Camden

American Journal of Public Health, New York

September II No 9, pp 664 702

67 Quantitative Study of Bacteria in City Dust With Special Reference to Intestinal and Buccal Forms C L A Winslow and I J Kligler New York
68 *Successful Efforts of a Small City to Secure a Milk Supply* from Tuberculin Tested Cows C H Wells, Montclair N J
69 *Use of Fish as Sanitary Measure to Eliminate Mosquitoes. M McMillan New York.
70 Legislation Proposed To and Enacted By General Court of 1912 M W Richardson Boston
71 *Municipal Hospitals for Contagious Diseases* S S Woody Philadelphia

69 **Fish as Sanitary Measure to Eliminate Mosquitoes.**—McMillan's observation as regards the destruction of mosquito larvæ in deposits where fish had been introduced, was that fish from one month old on, destroy the larvæ when found by them, without regard to the class of larvæ They will destroy the larvæ of the Culex Pipiens' or the "Anopheles," as well as that of the 'Stegomyia" She provided a 500 gallon deposit with six fish, and allowed the deposit to remain uncovered and open to the air, giving free access for mosquito propagation in it The jar contained numerous larvæ on the introduction of the fish, but McMillan could demonstrate no larvæ after four days, and no further propagation occurred while the fish were present, the water in the jar remaining clear and palatable, and free from algæ, as well as larvæ These fish will live on algæ and infusoria when larvæ are not present.

Albany (N Y) Medical Annals

August, XXVIII, No 8 pp 439 500

72 Mineral Springs of Saratoga G H Fish, Saratoga Springs N Y
73 Anti Typhoid Inoculation P P Gregory Albany
74 Lord Lister and Era of Modern Surgery W H Seward, Albany

September XXVIII No 9 pp 501 562

75 Medical Work in State Hospitals C W Pilgrim Poughkeepsie N Y
76 Toxic Deliria Report of Cases N A Pashayan Schenectady N Y
77 Small Pox and Vaccination F C Curtis Albany
78 Treatment of Summer Diarrhea in Infants H Rulison Albany N Y
79 Plea for Early Diagnosis in Surgical Affections. A H Traver Albany N Y

Colorado Medicine, Denver

September IX, No 9, pp 249 281

80 Anaphylaxis P Hillkowitz Denver
81 Spontaneous Rupture of Uterus. S D Van Meter Denver
82 *Suprapubic Prostatectomy With Method for Control of Postoperative Hemorrhage L Freeman Denver
83 Sacro Iliac Joint H W Wilcox Denver
84 Normal and Diseased Singing Voice / von Dworzak
85 Rocky Mountain Spotted Fever C D Walbruch Denver
86 Nitrous Oxid Oxygen Anesthesia in Major Surgery C G Parsons Denver
87 So-Called Arthritis Deformans With Special Reference to Its Pathology I W Ely Denver
88 Method of Localizing Long Saphenous Vein in Thigh F W Cochems Salida

82 **Suprapubic Prostatectomy**—The weak point in the suprapubic operation according to Freeman has been the control of hemorrhage The simplest and most reliable way is to pack the bleeding cavity with a long strip of iodoform gauze, or gauze soaked in some styptic material The end last inserted is retained in the grasp of a pair of large clamp forceps, preferably with a square, blunt end. The handles of these forceps project through the hole in the bladder, and for some distance beyond the abdominal wound It is evident that properly graduated pressure on the gauze packing by means of these forceps will control the hemorrhage This pressure is readily obtained by passing an ordinary rubber bandage around the patient's body beneath the pelvis and over the notch between the locked handles of the instrument Gauze pads are now adjusted about the handles in such a way as to incline them at any desired angle, thus regulating the direction of the pressure, which should not be greater than necessary, and the whole is held in place by adhesive strips and an ordinary bandage It is obvious that this method of controlling hemorrhage may sometimes be useful under other circumstances, for instance, in hepatic and pancreatic surgery

New Mexico Medical Journal, Las Cruces

September, VIII No 6, pp 353 376

89 Cholelithiasis With Case Reports. F W Noble Las Vegas
90 Significance of Leukocytosis in Surgery J S Mason Albuquerque

Boston Medical and Surgical Journal

September 12 CLXVII No 11, pp 347 382

91 *Operative Treatment of Gastro Enteroptosis. J Ransohoff Cincinnati
92 Medical Aspect of Intestinal Adhesions and Ptosis. J M Jackson, Boston
93 Dangers Incurred As Result of Non Recognition of Acute Aural Infections With Statistical Data. F L Kittredge Nashua N H
94 Inversion of Uterus H F Day Boston

91 **Treatment of Gastro Enteroptosis**—The following theses summarize Ransohoff's views on the operative treatment of gastro enteroptosis

1 Every case of visceral sagging should be studied individually and should not be treated in a routine way whether conservatively or by operation

2 If after the removal of the normal or nearly normal appendix the patient continues to suffer he should not be lightly classed among the hopeless neurotics. It is probable that the surgeon has overlooked some visceral displacements or adhesions which are the cause of the suffering

3 A small incision in abdominal work of the kind under consideration has signal disadvantages

4 The conclusion of the internists based on laboratory findings as for example after ingestion of a test meal cannot be made the basis of the functional capacity of the stomach under every-day conditions.

5 In many seemingly hopeless cases of gastro-enteroptosis with marked neurasthenic symptoms operation promises relief. If this is the result of suggestion it is none the less valuable if the relief is permanent

6. While of course internal treatment abdominal supports and postural treatment should be tried operative interference should not be unnecessarily delayed lest the habitus nervosus becomes too deep rooted to be eradicated

7 No gastroptotic patient should be operated on unless some actual functional disturbance can be demonstrated. To relieve this must be the aim of the operation

8 Given a visceroptosis in which we can demonstrate distinct functional incompetence or deviations, the existence of nervous phenomena does not militate against operation but may be the chief reason for performing it.

Journal of Ophthalmology and Oto Laryngology, Chicago

August VI No 8 pp 253 286

95 Systemic Infection Through Pharyngeal Lymphoid Ring Calling for Surgical Intervention C E Wylie Chattanooga Tenn
96 Importance of Accurate Refraction W H Crisp Denver
97 Eustachian Bougies of Fuse Wire J S Weaver Kansas City Mo

Medical Record, New York

September 14 LXXXII No 11 pp 461 506

98 *Sanatorium Treatment of Tuberculosis L. S Peters and E. S Bullock Silver City N M
99 *Three Hundred Patients Treated by Autogenous Bacterial Vaccines H A Craig New Brighton N Y
100 Institutional Treatment of Arthritis Deformans S W Boorstein New York
101 *Keratitis Neuroparalytica After Removal of Gasserian Ganglion W B Weidler New York
102 Diagnosis of Gall Stones W D Hamilton Columbus O
103 Abortion Its Social and Ethical Aspects C L Nammack York.

98 **Treatment of Tuberculosis.**—For the past three years the authors have continually used autogenous vaccines in all cases of tuberculosis showing a daily range of fever above 01 F Lately they have been giving them in all cases with a temperature curve over 100 F It is a matter of routine with them first to employ an autogenous vaccine in all patients with a fever above 100 F Then if they get no appreciable result they begin the administration of tuberculin, using the one in conjunction with the other So far their results have been such as to justify them in a continuation of this form of treatment, and, clinically speaking, they feel that there is much of good to be derived from the application of Wright's theories of vaccine therapy They make the vaccines in their own laboratory, give the injections at weekly intervals, starting with an average dose of one hundred million dead bacteria and gradually increase the dose unless contraindicated. The length of time of treatment is guided entirely by results, some patients taking injections for as long as eighteen months

In the fever cases showing a temperature curve from 99 to 101 F tuberculin is the most efficient measure at their command and often succeeds when complete immobilization has failed. Although reactions should be guarded against, at times they occur and everyone no doubt recalls the marked improvement and sometimes cure following such overdosage.

The procedure which they have practiced for the past three years may be described as maintenance of an effective dose in either febrile or afebrile cases, and raising the dose when it has become enfeebled by repetition as confirmed by absence of clinical effect. A patient exhibits a persistent maximum temperature of 99 3 F The dose is gradually raised until an effective point is reached, one which reduces the temperature This dose is then repeated until a rise again occurs, when the dose is not lowered but raised, following the temperature up as it were in an attempt to again reach an effective dose until gradually the temperature drops to and is maintained at normal This fortunate result having been observed they are guided in the dosage by principles which obtain in normal temperature cases in which general clinical effect is the guide for repeating or raising the dose

99 **Autogenous Bacterial Vaccines.**—In a personal administration of over one thousand doses of autogenous vaccines, Craig cannot recall a single instance where any evident harm resulted. There were no cases of hypersusceptibility or anaphylaxis, and no evidence of bad effects due to the so called negative phase He says that the treatment cannot take the place of surgery but in many instances it is a very useful adjunct to surgical procedures It does not interfere with old established methods of treatment, as they can be carried out in conjunction with the treatment, if thought advisable It is simply a great addition to our armamentarium in the treatment of bacterial infections

101 **Keratitis Neuroparalytica.**—Weidler is of the opinion that paralysis of the trigeminus or removal of the Gasserian ganglion with trophic disturbances should be regarded as the cause, and the absence of the lachrymal secretion, the presence of a foreign body, anesthesia of the cornea and the presence of some bacteria of suppuration should all be considered as contributing causes or factors It is not necessary for all of these last named to be present to have this form of keratitis develop, but one or more of these factors are usually present in every case of neuroparalytic keratitis The two cases that are reported in this paper are examples of this form of keratitis after the removal of the Gasserian ganglion

New York Medical Journal

September 14 XCVI No 11 pp 513 568

104 Inheritance of Acquired Characters. J Wright New York
105 *Polyneuritis With Radicular and Spinal Cord Involvement. W M Leszynsky New York.
106 Pathologic Changes of Pharyngeal Mucosa an Early Symptom Pathognomonic of Poliomyelitis M Neustaedter New York.
107 *Crotalin Treatment of Epilepsy R H Spangler Philadelphia
108 Drainage of Acute Infectious Lesions of Abdominal Cavity J W Kennedy Philadelphia
109 Community and Health M S Macy New York
110 Medical Corps and Medical Reserve Corps of United States Army A W Williams Philadelphia
111 Some Phenomena of Modern Practice of Medicine G W McGregor Littleton N H
112 Rheumatic Fever A M Nodine New York

105 **Polyneuritis.**—In the case reported by Leszynsky, that of a young man 21 years of age there was a slowly progressive development of atrophy and paralysis beginning in the ulnar distribution of the left hand until claw hand resulted some atrophy in both shoulder girdles a lesser involvement of the ulnar group in the right hand vasomotor paresis in both hands absence of subjective sensory symptoms, no pupillary disturbance Several months after the onset the lower extremities became implicated, the paralysis being limited to the peroneal group on both sides An area became evident of sensory disturbance over the trunk on the left side affecting all forms of sensibility, and an area of incomplete thermo anesthesia over the inner aspect of the left arm At the end of a year there was a rapid exacerbation of the symptoms in the lower extremities, at which time there was complete bilateral foot drop, hypotonia ataxia, absence of all reflexes, and slow urination This continued for a few months, when rapid improvement began and gradually terminated in complete recovery It will be noted that the left side was principally affected, the sensory symptoms being confined to that side The duration of the disease was one year and eight months

107 **Crotalin in Epilepsy.**—The crotalin solution which Spangler has used in eight typical cases of idiopathic epilepsy was made from the dried, yellowish, crystallike scales of the evaporated venom of *Crotalus horridus* The venom is obtained from the living reptile and dried between glass plates, under a bell jar in the sun A solution is then made by dissolving the crystals in glycerin and sterile water, to which a few drops of trikresol is added as a preservative The solution is then put in sterilized ampules containing 1 c.c. of whatever strength is desired. The dose given ranged from 1/200 to 1/25 of a grain

He found that not only are the virulence and number of epileptic fits favorably influenced by the crotalin treatment but the excitability of the nervous system is modified and the general health of the patients their mental faculties and metabolism in every respect are considerably improved The quality of the blood, and possibly its chemical composition seem to be affected by the injection of the venom. As to the exact effect it has on the coagulability of the blood further observation is necessary There is no danger in the use of crotalin as long as the [illegible] caution [illegible] in its administration [illegible] is carried out [illegible] careful observation [illegible]

FOREIGN

Titles marked with an asterisk (*) are abstracted below Clinical lectures single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Indian Medical Gazette, Calcutta

August XLVII, No 8 pp 301 316

1 Nastin Treatment of Leprosy L B Scott
2 *Mongolian Birth Marks. An Anthropologic Study L. G Fink
3 Insanity in Andamans J M. Woolley
4 *Cases of Hydatid Cyst T Jackson
5 *Multiple Echinococcal Infection of Abdominal Viscera T S Tirumurti
6 Peculiar Fever Met with on Northwestern Frontier J Husband and H V Hodge
7 Observations on Three Hundred Cases of Guinea Worm P K Chitale
8 Large Renal Calculus H B Steen

2. **Mongolian Birth-Marks**—In Fink's opinion the spots do not in any way point to an abortive spina bifida The spots and patches occur not merely in the region of the spine, but in other parts of the back, sides, abdomen, etc. He says that by no stretch of the imagination could these be regarded as abortive cases of spina bifida During eighteen years' service in Burma he does not recollect ever seeing a single case of that disease. In the Myaungmya district the patches are found on at least 90 per cent of infants, and yet not a single case of spina bifida has been seen. The condition appears to be equally rare in China The blue marks first described by Bealz appear to be merely a hereditary Mongolian characteristic and are a valuable test in anthropology

4 **Cases of Hydatid Cyst.**—During the past fifteen months Jackson has come across five cases of hyatid cyst (1) A cyst in Tenon's capsule, (2) cyst of liver, (3) two large hydatid cysts of the liver, one in the left lobe and the other in the right lobe, (4) hydatid cyst of the liver, affecting its right lobe, (5) cyst attached by pedicles to the small intestines and bladder The tumor was opened and another white sac was seen inside which was somewhat jelly like

5 **Multiple Echinococcal Infection of Abdominal Viscera.**—On opening what looked at first sight to be the abdominal cavity, Tirumurti found a very thick walled hydatid cyst containing a large number of daughter and granddaughter cysts with large flakes of a pultaceous, greenish material which was the granular layer of the cyst wall, but none of the abdominal viscera could be seen The thickness of the cyst wall was nearly half an inch On continuing to open the cyst, it was found to be in front of the peritoneum to which it was firmly adherent throughout Into this large main cyst, projecting from the left side to the middle line and filling up the left upper half and more of the abdomen, there was a large smooth, firm tumor covered with a dense white capsule This, on examination, was found to be the spleen, which was greatly enlarged, and which had a big hydatid cyst, about the size of an average man's head, occupying its upper and outer part and being tightly packed with a large number of daughter and granddaughter cysts with large flakes of the soft greenish granular layer of the cyst detached from its wall The cyst appeared to have originated outside the parenchyma of the spleen, but under its capsule As the main cyst was completely extraperitoneal and filled nearly the whole abdomen, the stomach and intestines were enclosed in a comparatively small bag of peritoneum beneath the liver and in the right half of the abdomen The liver was enlarged the right lobe was indented above by the pressure of a cyst, about the size of a hen's egg, situated beneath the diaphragm, four smaller cysts were found in the substance of the liver The thick white walls of the liver cysts collapsed as soon as they were opened, and were very easily detachable from the liver parenchyma The mesentery and omentum contained a large number of very small intraperitoneal cysts The kidneys were markedly cirrhotic, but had no cysts in them Stomach, intestines, lungs and heart were free from them As the patient presented no cerebral symptoms, the brain was not examined

Medical Press and Circular, London

August 7 XCIV No 3822 pp 125 148

9 Digestive Uremia Simulating Cancer of Pylorus. M. Castaigne
10 Surgery of Large Bowel F T Paul
11 Necessity for Necropsy in Every Case of Death. J C McWalter
12 Deep Petrissage of Abdomen as Aid to Diagnosis of Tapeworm R J Cyriax.
13 Some Medical Aspects of Eugenics A F Tredgold.

August 14 XCIV No 3823, pp 149 174

14 Other Disorders of Impeded Respiration M Collier
15 Epidemic Gastro-Enteritis H L MacCarthy
16 Influence of Segregation on Prostitution and on the Public H A Kelly
17 Suppression of Tuberculosis in Ireland S Agnew
18 Formation of State Medical Service R R. Rentoul

August 21, XCIV No 3824 pp 175 198

19 Treatment of Biliary Vesicular Colic P Lereboullet
20 Epidemic Diarrhea J Allan
21 *Effect of Certain Cardiac Remedies on Arterial Pressure J Burnet
22 Prevention of Cancer J F Little
23 Material Obligations of Spiritualism and Allied Phenomena T C Shaw
24 Proposed Public Dental Service R R Rentoul

21 **Effect of Cardiac Remedies on Arterial Pressure**—The drugs Burnet experimented with were digitalis, strophanthus, squills, strychnin and caffein He tested the effect of tincture of digitalis on the arterial pressure in twenty five cases of disease, including such conditions as mitral incompetence, aortic incompetence, anemia with palpitation, arteriosclerosis, tachycardia after influenza, and exophthalmic goiter In none of these cases was there any effect whatever observed on the blood pressure even when the drug was given in doses of 15 minims every four hours In some cases the blood pressure registered 160 or over, but even here there was no tendency to its increase On the contrary, in one case of chronic interstitial nephritis with marked arteriosclerosis and emphysema the patient's condition greatly improved after the administration of tincture of digitalis in 10 minim doses three times a day for several weeks with intermissions of three or four days Incidentally he observed that greater benefit usually resulted when the drug was given in large doses (i e, 10 to 15 minims) than when it was administered more sparingly He also tested the action of digitalis on a few healthy individuals, or at least healthy so far as their cardiovascular condition was concerned, himself included His own arterial pressure was found to vary little from 120 mm, and even when he took as much as 15 minims of tincture digitalis every four hours the mercury column did not alter, nor did he experience any diuretic effect from the drug He carried out seven sets of observations with strophanthus All the patients suffered from valvular lesions In all cases it produced diuresis, but only in four of the cases was any rise of blood pressure observed, and in all of these there was marked arteriosclerosis present, so that he is not certain whether the rise is to be attributed merely to the effect of the drug, especially as in the other three cases there was no rise recorded, although the tincture was steadily pushed to the most extreme limit of toleration Squill, Burnet found, in three cases observed, varied greatly in its effects In one of the cases Burnet found no alteration in arterial pressure after the exhibition of 15 minims of tincture scillæ every four hours for ten days. In another case the pressure, which was 150 mm at the start, rose to 160 mm, while in the third case the sphygmomanometer hardly ever gave the same record twice in succession The patient however, was a very nervous youth with marked mitral regurgitation, and the application of the instrument invariably excited him He studied the action of caffein on himself Three grains of the citrate produced no change. With 5 grains he observed at first a rise (?) which amounted to only 5 mm Within a quarter of an hour, the pressure, which was 120 mm to start with, rose to 130 mm. and in half an hour to 135 mm The headache from which he was suffering was definitely increased. Not until an hour and ten minutes after he had taken the drug did he find the pressure return to normal On another occasion he took 10 grains In ten minutes there was 15 mm increase in the blood pressure, and in half an hour 140 mm. was reached Only in two hours afterward did he obtain the normal reading Burnet experienced considerable inconvenience from copious diuresis Strychnin he regards as a most valuable stimulant to the circulation in cases in which the latter threatens to fail as in pneumonia. Its effects on arterial pressure are very definite He has carefully observed these in several cases, and has come to the conclusion that when the blood pressure has fallen below the normal, strychnin is the drug to

administer. Within a very short time after its hypodermic administration a rise of as much as 40 mm has been obtained. When given by the mouth the rise is never so rapid or so great but still it can be recorded. Nor is it necessary to administer large doses in order to produce a definite rise in the arterial pressure. This may be readily obtained by giving 5 minims of the liquor strychninæ hydrochloridi (B. P.) by the mouth or by injecting 2 or 3 minims hypodermically.

Clinical Journal, London

August, 7, XL, No 18, pp 273-288

25 Abscess of Brain. C. A. Ballance.
26 Treatment of Pleural Effusion. O. Grunbaum.

August 14, XL, No 19, pp 289-304

27 Diagnosis of Phthisis and Its Treatment with Tuberculin. C. Riviere.
28 *Infantile Spastic Paralysis and Its Treatment. E. M. Little.

August 21, XL, No 20, pp 305-320

29 Some Cases of Enlarged Spleen. W. H. Willcox.
30 Electrocardiogram in Complete Heart Block. C. C. Gibbes and J. F. H. Dally.

28. Infantile Spastic Paralysis.—Little is of the opinion that all cases of infantile spastic paralysis except the hopelessly idiotic are amenable to surgical treatment. This in the first place should consist of tenotomy or tenectomy and the application of splints, or plaster of Paris. Accompanying and following this the assiduous and patient training of the child is indispensable. Retaining apparatus can be worn at night, and in those patients able to walk, ambulatory instruments by day. The method of alcohol injection may be given a trial, but in very severe cases which do not improve under other treatment Foerster's operation is indicated. It should not be performed indiscriminately, but only after careful study of the conditions of the individual case. If paralysis of voluntary impulses is complete, operation is useless. Athetosis is a contra-indication because it connotes profound degeneration in the brain centers.

Lancet, London

August 31, II, No 4644, pp 569-674

31 Student's Number. Session 1912-1913.

British Medical Journal, London

August 31, II, No 2696, pp 465-532

32 *Functional and Histologic Effects of Intraneural and Intraganglionic Injections of Alcohol. O. May.
33 Gray Hair Associated with Nerve Lesions. C. L. Cheatle.
34 Frenkel Treatment of Tabetic Ataxia. J. G. Carson.
35 Morphology of a Strain of Trypanosoma Equiperdum. W. Yorke and B. Blacklock.
36 Roentgen Ray Treatment of Uterine Fibroids. G. F. Haenisch.
37 Results of Treating Exophthalmic Goiter with Roentgen Rays. F. A. Stoney.
38 Treatment of Hypertrichosis with Roentgen Rays. A. L. Rayner.
39 Roentgen Ray Diagnosis in Some Forms of Arthritis. R. Morton.
40 Cervical Ribs. G. Scott.
41 Peribronchial Phthisis. A. C. Jordan.
42 Ionic Medication. H. L. Jones.
43 Physics of Ionic Medication. S. Sloan.
44 *Control of Heart Beat by Means of Contractions of Muscles Electrically Stimulated. W. Hampson.

32. Intraneural Injections of Alcohol.—May ascertained experimentally that alcohol injected into the trunk of a peripheral nerve produces a more or less complete local necrosis of the nerve at the point of injection. The change is not an "ascending" one, the nerve above the point of injection remaining normal; the cells of origin of the fibers may show some degree of chromatolysis but do not exhibit signs of permanent injury. The conditions produced by such injection are more favorable to regeneration than those resulting from simple section without suture. The anatomic continuity of the nerve trunk favors rapid regeneration, [illegible] to a greater or less extent in every case of alcohol [illegible]. It [illegible]

44. Control of Heart Beat.—[illegible]

Briefly the treatment is a special modification in several directions of the use of the Bergonié apparatus for repeated simultaneous stimulation of the large muscles of the body. Electrodes of large surface are held in firm contact with the front and back of the thigh, with the calves, the two sides of the abdomen and the back. A faradic current of moderate tension is passed through all the electrodes simultaneously at short intervals so that all the muscles treated make intermittent contractions which, in consequence of the nature of the current and the conducting surfaces, are moderate and painless. Not only is the stimulation general, being applied to as many of the large muscles as can conveniently be stimulated together, but a special arrangement is made for the timing of the stimuli, the makes and breaks being governed by a metronome, which can be set at any desired speed.

When it is wished to make the patient's heart beat more slowly the metronome is set so that the muscle stimulations occur at a slightly slower rate than the pulsations of the patient's heart, and the latter in a few minutes begin to synchronize with the former. When synchronization is well established the metronome speed is further lowered a few beats per minute, and before long the heart picks up the reduced rate. By persevering in this way the operator brings down the pulsation of an over-rapid heart to a rate that is at or near the normal.

The pulse is at the same time made stronger and more regular, the patient experiences a sense of well-being, rest and relief from distress which lasts for several hours after the treatment is over, and in particular, difficulty of breathing is diminished or removed.

After a course of treatment the heart acquires a better habit of its own when not under treatment, and a heart which was dilated not only acquires a pulse which is stronger and slower, but also undergoes appreciable contraction.

The *rationale* of the treatment is said to be briefly this: The heart is assisted in its work of making the blood circulate by a temporary conversion of the large muscles of the body into subsidiary hearts. Its work is thereby better done, while it is itself doing less work. The circulation of the whole body is improved while the heart is in a partially resting state.

Annales de Gynécologie et d'Obstétrique, Paris

August, XXXIX, No 8, pp [illegible]

45 *Retention of Menstrual Blood in Case of Malformation of Uterus and Vagina. (De l'hématocolpos latéral dans les cas de malformation utéro-vaginale.) Vautrin.
46 Retroplacental Hemorrhage with Infiltration of Wall of the Uterus. (Nouvelles observations d'apoplexie utéro-placentaire.) Couvelaire.
47 Pathogenesis and Prophylaxis of Lesions in the Placenta with Albuminuria and Eclampsia. V. Wallich.
48 *Therapeutic Acidity of the Vaginal Mucus. R. Labusquière.

45. Malformations in Uterus and Vagina Mechanically Interfering with Menstruation.—*Vautrin remarks that this subject has been singularly neglected and especially the accumulation of the menstrual discharge in a double uterovaginal canal of which he has encountered [illegible] cases. [illegible] found only four cases without hematometra in ninety cases. If there is no menstruation or if the [illegible] the malformation may be only [illegible] a case in which he removed the uterus [illegible]*

[illegible]

the acids generated by the fermentation of a sugar solution is that diabetic women seem to escape puerperal fever more than others

Archives Générales de Chirurgie, Paris

July VI No 7, pp 749 876

49 *Aneurysm of the Splenic Artery D Villard and J Murard.
50 Experimental Research on Ulceration of Large Arteries in Contact with Drains R J Weissenbach and H Bertier
51 *Operative Treatment of Genital Tuberculosis in Men Lapeyre

49 **Aneurysm of Splenic Artery**—Villard and Murard report a case with necropsy but they have been able to find only one similar case on record Both patients were healthy, one was a woman of 25 and the other a man of 33 both had suffered from rare occasional acute attacks of intense pain in the abdomen, without change in the pulse or temperature, and during the intervals they felt entirely well These symptoms had been observed for two years in the man's case and for six years in the other before an extremely long attack of the pain brought the patients to the surgeon The woman was cured by splenectomy, but in the man's case the viscera were inoperably welded together

51 **Genital Tuberculosis in the Male**—Lapeyre reviews what has been written on this subject, epitomizing his conclusions in the statement that genital tuberculosis in male adults, in the frequent primary form, is a mild local affection, essentially amenable to surgical measures The lesions should be removed far into sound tissue but the testicle should be left undisturbed, as in fully 50 per cent of the cases it is intact Slight involvement of the prostate or seminal vesicles generally heals spontaneously after removal of the focus below Vasoepididymectomy is the preferable technic, and the sexual functions are not impaired even by a bilateral operation The sound vas should be resected to protect the second testicle Removal of the seminal vesicles may be necessary to supplement the vasoepididymectomy, and access by the inguinal or perineal routes should be determined by individual conditions Bilateral castration should never be done except from urgent necessity

Archives des Maladies de l'App Digestif, Paris

June VI, No 6 pp 302 360

52 Catheterizing Pylorus and Duodenum (La dilatation du pylore sans opération) M Einhorn
53 Diagnosis of Gastric Cancer (Un renseignement de plus pour le diagnostic du cancer gastrique) A Medina
54 Hemorrhagic Ulcerative Colitis Bret and Blanc-Perducet
55 Volatile Acids in Stools (L acidité volatile des matières fécales) H Labbé and F Larue
56 Diagnosis of Hour-Glass Stomach (A propos du diagnostic radiologique de l estomac biloculaire) Cerné and Delaforge

Bulletins de la Société de Pédiatrie, Paris

June XIV No 6 pp 249 323

57 Disadvantages of Condensed Milk in Infant Feeding (L emploi des laits condensés chez le nourrisson) E Ausset
58 *Osteomalacia in Boy of 9 (Déformations ostéomalaciques du squelette chez un garcon de 9 ans) L Tixier and C Roederer
59 Congenital Stenosis of the Pylorus from Muscular Hypertrophy Death the Sixth Week. (Rétrécissement congénital du pylore chez un nourrisson) A B Marfan
60 Experimental Heat Stroke (Influence de la chaleur chez les jeunes chiens) Schreiber and Dorlencourt.
61 Adrenal Insufficiency in Erysipelas in Infants (De quelques particularités de l érysipèle du nouveau né Forme clinique avec signes d insuffisance surrénale) Lesné and Francon
62 Auscultation of Tracheobronchial Enlarged Glands. (La recherche de la transsonance sterno vertébrale chez les enfants Sa valeur pour le diagnostic de l adenopathie trachéo-bronchique) D Oelsnitz

58 **Osteomalacia in Children.**—The little patient in the case reported was a boy of 9, but the first signs of trouble had been noted at the age of 4 The child had previously been healthy The blood pressure was low and there was marked weakness, both suggesting disturbances in the ductless glands as factors in the osteomalacia. This assumption was sustained by a tendency to pigmentation and discovery of Sergent's adrenal white line The child is taking now a tentative course of epinephrin

Lyon Chirurgical, Lyons

August VIII No 2 pp 121 244

63 *Early Treatment of Talipes (Résultats éloignés et valeur de la méthode de Finck dans le traitement precoce des pieds bots congenitaux.) G Nové-Josserand and A. Rendu
64 Vaginal Operation for Fistula After Abdominal Hysterectomy (Le traitement par le colpocleisis éleve des fistules urinaires vaginales consecutives à l hystérectomie abdominale avec évidement pelvien pour cancer uterin) H Violet and J Murard
65 Ossification in Mammals. G Dubreuil

63 **Early Treatment of Club Foot**—Nové Josserand and Rendu have applied Finck's method in the treatment of talipes in thirty cases and extol it as extremely effectual The results were perfect in 50 per cent , in 37 per cent. simple tenotomy was required besides, and in 12 per cent internal or posterior arthrotomy proved necessary, but the second operation was much facilitated by the preceding treatment Finck commences the correction of the talipes the very day of birth, keeping up the massage in a progressive and a continuous manner and maintaining the correction obtained by a flannel bandage wound over a hard sole with thick felt lining The bandage is removed each time for the massage By the age of two months the tissues are too firm to commence effectual massage The best results were obtained by first correcting the adduction of the front part of the foot, correcting also to a slight extent the supination, but not acting on the equinus position In the second sitting, next day, the supination and equinus position are combated and so on until hypercorrection is realized so that the foot retains the normal position after the bandage has been removed This result is generally obtained with twelve sittings or less Twelve illustrations show the various maneuvers and dressing, and the appliance worn afterward for elastic traction The whole procedure is complete by the end of six months

Presse Medicale, Paris

August 3 XX No 63 pp 649 656

66 Auscultation of the Apex in Adults (Valeur séméiologique chez l adulte de la diminution du murmure vésiculaire limitée au sommet) F Bezançon
67 Connection Between Tuberculosis and Chronic Mediastinitis (La médiastinite chronique considérée dans ses rapports avec la tuberculose) E Sergent

August 7 No 64 pp 657 664

68 Traumatic Separation of the Epiphyses (Les traumatismes osseux chez l enfant) Kirmisson
69 *Local Subarachnoid Anesthesia in Treatment of Gastric Crises in Tabes (Thérapeutique intra rachidienne des crises gastriques du tabes Ponction lombaire et injections sous arachnoïdiennes) H Roger and Baumel

August 10 No 65 pp 665 676

70 Present Status of Tuberculin Treatment of Pulmonary Tuberculosis L Rénon
71 Screws in Treatment of Fracture of the Olecranon (Le vissage simple applique aux fractures fermees de l olecrane) P Alglave
72 To Remove Stain of Iodin from Hands (De l emploi de corps permettant de décolorer les téguments lors de la désinfection des mains par la teinture d'iode) H and E Chabanier

August 14 No 66, pp 677 684

73 *Butterfly Net as Mosquito Catcher (Sur la destruction des moustiques à l aide du filet) J Legendre
74 *Treatment of Anthrax L. Boidin Vignaud and L. Fortineau

August 17 No 67 pp 685 692

75 *Local Anesthesia and Surgeons Who Operate on Themselves (L anesthesie localisée et les chirurgiens qui s opèrent eux mêmes) P Reclus

August 21 No 68 pp 693 700

76 Cultivation of Tissues Outside of the Organism (La vie manifestée des tissus in vitro) A. Carrel
77 The Physiologic Jugular Venous Pulse C Lian

69 **Spinal Anesthesia in Treatment of Gastric Crises.**—Roger and Baumel explain the benefit from subarachnoid injection of a drug as the result of the "leukocyte shower" which follows the chemical irritation Thus is induced a therapeutic serous meningitis, and this favors the absorption of the products of the chronic process in the spinal roots which seems to be the main factor in the attacks of pain This assumption throws light on the permanent benefit derived from injection by lumbar puncture of an anesthetic or other drug, especially subarachnoid injection of cocain or magnesium sulphate In a case of recurring gastric crises in a man of 32, the intervals had become shorter and shorter in the course of two years but there were scarcely any other signs of tabes Withdrawal of 10, 20 or 30 c c of cerebrospinal fluid had no influence on the crises but they did not recur for months after injection of a small amount of an anesthetic Two repetitions later of the injection failed to influence the crises, which even increased in intensity Then 4 5 c c of a 25 per cent solution of magnesium sulphate was injected by lumbar puncture and this arrested the gastric crises and there were no further attacks for four months when they recurred in such intensity that the patient clamored for repetition of the injection The benefit was as pronounced as before, and the patient was free from all disturbances at date of writing, a few days later There were no appreciable by effects after injection of the mag

nesium sulphate except intense general hyperesthesia for a few hours The cerebrospinal fluid showed signs of a pronounced polynuclear reaction two days after the injection Each of the drugs used in spinal injection in tabes has some successful cases to its credit, as well as failures Further experience in this line is needed

73 **Butterfly Net as Mosquito Catcher**—Legendre called attention two years ago to the advantages of a conical butterfly net as an easy means to catch mosquitoes His experience in the tropics with it since has shown that it is even more effectual for the purpose than he had dreamed The opening of his net pocket is 19 by 13 inches, the deep pocket tapering to a point, and here the mosquitoes congregate Estimating 900 mosquitoes to the gram, with a few of these nets from 50,000 to 80,000 mosquitoes have sometimes been taken in one building In a sick room and in caring for children the attendant can thus easily, silently and without haste capture the casual invaders, day or night, without disturbing anyone

74 **Treatment of Anthrax.**—The experiences on record to date are reviewed in regard to serotherapy, salvarsan and preparations of the *Bacillus pyocyaneus* The results to date are not conclusive, but several cases of recovery under serotherapy even after invasion of the blood, have been reported In Boidin's one case it failed The antagonism between the anthrax bacillus and the pyocyaneus has been utilized in treatment, and Vignaud reports three recoveries under it He has had sixty cases of anthrax in his practice and never knew a patient to recover who had the symptoms presented by one of the patients who recovered under the pyocyanein Fortineau reports extensive experimental research in this line and the cure of four cows given this treatment He has applied it also in eighteen clinical cases with recovery of all the patients Boidin urges bacteriologic examination of the blood in all cases of anthrax, as this alone affords a basis for comparison of the effects of different methods of treatment

75 **Local Anesthesia and Operating on One's Self**—Reclus was one of the pioneers in the application of local anesthesia and for many years has operated extensively with it, a total of 12,000 minor and major operations in twenty six years He says that whenever it is possible, it should always be given the preference as it avoids not only the immediate dangers from the general anesthesia but the insidious damage to the kidneys and liver and the inhibition of phagocytosis the clinical importance of which we are only beginning to appreciate. The objection that it would shock patients to watch an operation on their own tissues has not proved tenable, when permitted they follow the surgeon's work with great interest The advantages of the method are peculiarly evident when a surgeon by this means is able to perform an operation on himself with as much skill and sangfroid as when another is the victim. Reclus reports four cases of this kind The first was the excision of a tuberculous process in the right forefinger, a cadaver infection. The young surgeon's consultant advised amputation of the finger, but he did not wish to lose it and consequently excised the lesion himself holding the knife firm in the left hand and scooping out the lesion by manipulating the finger on the knife and curet The lesion healed with only a minimal scar left now, twenty years later In the second case a surgeon made an extensive resection of an ingrowing nail under local anesthesia with equally good results In the third case a Turkish army surgeon studying in France was operated on under local anesthesia for bilateral inguinal hernia He was so impressed with the local anesthesia that soon after he proceeded to resect his own scrotum to cure varicocele and with entire success The fourth case is more recent and has been written up lately in the daily papers The surgeon in question is Dr J Reynauld formerly professor of anatomy at Toulon. He thus operated on himself for a left inguinal hernia without the slightest disturbance or pain except from the first prick of the preliminary injection [illegible] 0 005 gm. of morphin. He then injected 3 c.c. of a 0.5 per cent. solution of cocain into the various layers of [illegible] and 2 c.c. into the fibers [illegible] of the [illegible] During the course of the operation he [illegible] 2 c.c. [illegible] the [illegible] 15 drops of epinephrin had been added to 10 c.c. of the solution Before and during the operation he drank a little coffee The operation was done leisurely in about an hour and a quarter and the superior advantages of the local over spinal anesthesia for this "autotomy" were abundantly demonstrated Two auto-operations under spinal anesthesia are on record but Reclus knows of only the above four under direct local anesthesia.

Revue de Chirurgie, Paris

August XXXII No 8 pp 117 148

78 *Ulceration of Iliac Artery (Ulcération spontanée des branches de l'iliaque externe dans les abcès appendiculaires.) M Patel and J Murard
79 Dyspepsia of Biliary Origin (Des troubles dyspeptiques d'origine biliaire.) G Cotte and J Bresset
80 Stenosis of the Esophagus (Le traitement actuel des sténoses cicatricielles graves de l'oesophage Méthodes endoscopiques et interventions chirurgicales combinées.) J Saignon and H Mamartine
81 Surgical Anatomy of Horseshoe Kidney (Chirurgie du rein en fer à cheval.) V Cathelin and M Gérard Commenced in No 7

78 **Ulceration of the Iliac Artery**—Patel and Murard refer to involvement of the external iliac artery in an appendicitic abscess They recently encountered a case of the kind and report a second one from Bérard's service both patients succumbed to the hemorrhage from the ulcerated external iliac The appendix region had been drained after appendicectomy in both cases

Semaine Médicale, Paris

August 14 XXXII No 33 pp 385 396

82 Hysterectomy for Uncontrollable Post Partum Hemorrhage R de Bovis

August 21 No 34 pp 397 408

83 *Adsorption and Its Utilization in Therapeutics L Cheinisse

August 28 No 35 pp 409 420

84 *Treatment of Diarrhea by Sedative Medication (Nouveau traitement médicamenteux des diarrhées.) J Tuld

83 **Adsorption and Its Utilization in Therapeutics** Cheinisse defines adsorption as the fixation of a substance primarily at liberty in a fluid medium, for example, on the surface of another substance a molecular adhesion and not a chemical combination Adsorption may be reversible or not but it is the explanation for the action of charcoal and bolus alba as an antidote to poisons and in treatment of auto intoxication, cholera typhoid, chronic enteritis etc, and bacillus carriers The favorable action of bismuth in gastric ulcer is probably due to its adsorbing property as well as the mechanical protection it affords Cheinisse thinks that the principle of adsorption has not been utilized to the full in internal medicine and prophylaxis to date

84 **Treatment of Diarrhea**—Tuld became convinced that diarrhea occurring soon after meals is merely an exaggeration of the physiologic process owing to abnormal irritability of the stomach nerves Treatment of the diarrhea based on this assumption has given unexpectedly good results He ordered the patient to take ten minutes before each meal, 10 drops of a solution containing 3 per cent cocain and an equal amount of codein in peppermint water For children he prescribes a 1 per cent solution as many drops as the child has years No by effects were observed but the diarrhea, recent or chronic, rebellious to all other measures and dieting, stopped after ingestion of the first dose He usually kept up the treatment for a few days up to a week no tendency to constipation followed if the patients had not been subject to it previously He regards this treatment as ideal from all points of view and cites two cases from his experience with fifty It is possible that cocain suppositories might answer the same purpose The only failure in his experience was in a diabetic with hyperchlorhydria, and [illegible] of the lacking hydrochloric [illegible] [illegible]

[illegible] für Verdauungs-Krankheiten, Berlin

XIII [illegible]

[illegible]

86 Catheterizing the Pylorus (Dehnung des Pylorus ohne Operation) M Einhorn
87 Hormonal (Weitere Erfahrungen mit dem Peristaltikhormon —Zülzer) R Glitsch
88 *Influence of Mastication and Emotions on Gastric Acidity (Einfluss des Kauaktes und Wirkung psychischer Faktoren auf die Beschaffenheit des Mageninhalts nach Probefrühstuck.) G Skray
89 Neuenahr Waters with Peptic Gastric Ulcer (Neuenahrer Grosser Sprudel" bei Ulcus pepticum und irritativen Zuständen des Magens) E. Rosenberg
90 *Primary Gastric Myxosarcoma E Fricker
91 *Gastritis with Gastric Ulcer (Zur Frage der Gastritis bei *Ulcus ventriculi*) B Chessin
92 *Importance of Starch Iodin Stomach Content Test for Retention and Atony (Bedeutung der Amylaceenretention im nüchtern ausgeheberten Mageninhalt) T Hausmann
93 Early Diagnosis of Cancer (Frühdiagnose der Krebse des Verdauungskanales) J Wolff and G Kelling

85 **Support for Sagging Stomach.**—Borgbjärg and Fischer extol the advantages of combining a supporting band with an elastic pad to relieve the disturbances from gastroptosis Their skiagrams show that this actually lifts the stomach and sustains the abdominal walls (Their conclusions have already been summarized in these columns, May 25, 1912, p 1652) They use Vermehren's corset with an Enriquez air pad

88 **Influence of Mastication and Psychic Factors on Stomach Secretion.**—Skray found in his investigation of 118 patients given a test breakfast that mastication and emotional factors had a decided influence on the acidity of the stomach content With defective mastication the total acidity of the stomach content was higher, while emotional factors reduced the production of acid, but this influence was far less marked than that of mastication When the test breakfast was not well chewed, the chymification was defective This was evident even in cases of pronounced hyperacidity, and it imposes the necessity for thorough chewing of the food in a test meal.

90 **Gastric Myxosarcoma**—Fricker's case is the fourth one on record, he believes it was distinguished by the fact that the stomach content seemed to be normal, although a tumor could be palpated and there was some retention There had been symptoms of mild gastric disturbance for nearly two years when they increased in intensity and the tumor was excised.

91 **Gastritis With Gastric Ulcer**—Chessin concludes from the nine cases cited that gastritis is the rule with gastric ulcer The ulceration is part of a general process involving the gastric mucosa more or less extensively

92 **Importance of Retention of Starch as Sign of Stenosis of the Pylorus**—Hausmann says that the findings of the currant test indicate a motor disturbance in the stomach, but this may be due to either mechanical causes or to atony of the stomach walls Of greater differential value is the macroscopic retention of particles of starch, this occurs only with mechanical retention. The test for it is extremely simple, twelve hours after a test supper of rice or barley porridge the stomach contents are aspirated the patient reclining The stomach content is set aside in a glass to settle and then all is poured out except about 5 c c. A few drops of Lugol's solution are well mixed with the sediment and water added until the turbid fluid becomes transparent Particles of starch, stained dark blue, can be seen floating in the water or settling to the bottom The presence of visible starch particles indicates mechanical retention, while microscopic findings alone indicate retention from atony of the stomach With general asthenia there may be microscopic retention of starch at times and not at others when the general condition is improved His extensive experience demonstrates that macroscopic starch particles may be accepted as a certain sign of mechanical obstruction Among some instructive cases cited is that of a man of 52 with anacidity and 20 c c content with macroscopic minimal retention of starch in the fasting stomach, no blood, no tumor, no lactic acid were evident, but on the above findings alone he correctly diagnosed cancer of the pylorus In ten years of experience Hausmann has never encountered a case of macroscopic retention of starch which proved to be due to atony alone His experience has demonstrated further that starch particles may be retained in case of hypersecretion when fat and meat particles are passed along This frequently corroborated fact confirms anew the advisability of a fat albumin diet in cases of stenosis of the pylorus, as Strauss has emphasized. The starch test may thus point the way to effectual dietetic treatment as he shows by an instructive example, no signs of retention being found after restriction to a fat and albumin diet The currant test is liable to be misleading as the currants are not always pumped out with the rest of the stomach content.

Berliner klinische Wochenschrift

August 12, XLIX No 33, pp 1549 1596

94 *Bacillus Carriers. (Bacillenträger) G Sobernheim
95 Cultivation of the Spirochæta Pallida. H Noguchi and Tomasczewski
96 Injury of Tissues from Radiothorium and Products of Radium Emanation E P Tagle
97 *Metastasis of Thyroid Tumor in Bone (Schilddrüsenmetastasen im Knochen) F Regensburger
98 Dislocation of the Fingers in Syringomyelia (Distensionsluxationen bei Syringomyelie) Joachimsthal
99 Phonoscope Percussion (Die phonoskopische Perkussion: eine neue Untersuchungsmethode) J Tornai
100 *Asthma in Children. (Asthma bei Kindern und dessen Behandlung) H E Knopf.
101 Roentgenoscopy of Duodenal Ulcer (Zur Technik der Röntgenuntersuchung des Duodenalgeschwüres) S Kreuzfuchs
102 Anaphylaxis (Ueber Kriterien der Anaphylaxie) J Auer
103 Medicolegal Questions (Der ärztliche Eingriff im Spiegel des Rechts) H Lieske

94 **Bacillus-Carriers.**—Sobernheim comments on the fact now well established that nearly every infection has a history of cases in which no appreciable symptoms were induced by it, while the prophylaxis of infectious diseases stands and falls with the control of the bacillus carriers He gives a table showing that of 1,832 persons examined for diphtheria bacilli (Berlin, 1910 11) they were found in 244 healthy persons, that is, in 13 3 per cent Dysentery bacilli were found in thirteen healthy persons among 500 examined, and in thirty three presenting symptoms of dysentery Paratyphoid bacillus-carriers are so numerous in certain parts of Germany that this germ must be regarded as ubiquitous there, while it is comparatively rare in Berlin, being found only in the sick and the contacts

97 **Metastasis of Thyroid in Bone**—Regensburger's patient was a woman of 55 with a slight enlargement of the thyroid and a tumor in the upper arm which proved to be proliferation of thyroid tissue The tumor had been developing for two years In fifty eight cases on record of thyroid metastasis the interval before death ranged from three months to seventeen years, the metastasis—not the thyroid—being responsible for the fatal outcome In the present case the arm was exarticulated with apparent success He reviews the literature on the subject there seems to be a special affinity between the thyroid and bone tissues, metastasis occurring in the bones with thyroid cancer more frequently than with cancer elsewhere Winiwarter was unable to find a case of bone metastasis in 903 cases of gastric cancer, but the lungs suffer more frequently than the bones from metastasis of a thyroid cancer

100 **Asthma in Children**—Knopf has encountered asthma in five cases in children and succeeded in curing it in all without exception The treatment includes besides the usual physical dietetic and medicinal means, psychic training, change of environment and systematic breathing exercises

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 20 XLII No 21 pp 777 808

104 Propaganda for Breast Nursing (Stillen und Stillunfähigkeit.) H Koller
105 *Why Epidemics of Cholera are Liable to Die Out After a Heavy Rain (Warum eine Choleraepidemie nach einem heftigen Gewitter über ein ausgestrecktes Gebiet für längere Zeit verschwindet) C O Gelpke

August 1 No 22 pp 809 840

106 *Manifestations of Cerebrospinal Arteriosclerosis and Their Treatment (Ueber einige Erscheinungsformen der cerebrospinalen Arteriosklerose) R. Bing

August 10 No 23 pp 841 888

107 *Treatment of Parasyphilitic Nervous Disease (Spezifische Behandlung der parasyphilitischen Nervenkrankheiten) J Jadassohn
108 Treatment of Prolapse of the Uterus in Elderly Women. (Prolapsoperationen bei älteren Frauen) E. Wormser
109 Whooping Cough (Zur Aetiologie und Pathologie des Keuchhustens.) E Döbeli

105 **Rainstorms and Cholera.**—Gelpke recorded a number of interesting facts in regard to cholera during his years of practice in the East Indies (Batavia) His attention was attracted particularly to the way in which a cloudburst or extremely heavy rainstorm was so often followed by the arrest of a prevailing epidemic This and certain other observations have convinced him that fish play an important part in the transmission and spread of cholera. He relates a case of cholera which had developed in a family living where there were no neighbors for miles in all directions and no strangers had passed that way for weeks Transmission from human beings was out of the question in this case He remarks that vultures assemble where there is carrion, and the fish assemble when the carrion is in water, and they may come from long distances The progress of cholera has been along the rivers, generally from the mouth upward, although cholera germs cannot spontaneously make their way against the stream But they can be carried by fish going up to spawn A heavy rain raising the rivers washes away the fishes' eggs and the silt deposited by the turbid waters acts as a filter that prevents contamination of the ground water beneath the streams India is the home of cholera, and to this contributes the custom of the natives in regard to systematically defecating into running waters

106 **Cerebrospinal Arteriosclerosis**—Bing says that the early symptoms of this condition closely resemble those of neurasthenia and sometimes can be differentiated only by the lack of the causes which produce neurasthenia He is convinced that neurasthenia never develops without certain etiologic factors such as congenital degeneracy or, in the acquired form, a combination of nervous strain and the chronic influence of disagreeable emotions When the symptoms of neurasthenia develop for the first time at the arteriosclerosis age, the vascular apparatus should be carefully examined, the true and false forms may be associated The vasomotor cardiac disturbances of true neurasthenia are liable to afford a predisposition for arteriosclerosis When the intracranial arteriosclerosis is more advanced, there may be paroxysmal pains simulating neuralgia The absence of tender points along the nerves, and the boring, lancinating character of the pains suggest that they are due to cramps in the vessels rather than to true neuralgia Motor disturbances of the type of intermittent claudication are more common, Bing has recently encountered two cases of this intermittent claudication of the spinal cord." It is distinguished from the peripheral form by the absence of vasomotor and pulse disturbances in the legs, and by the transient exaggeration of the knee jerk and Achilles reflex Spinal intermittent claudication from syphilitic endarteritis is more common than from arteriosclerosis of the spinal cord Fleeting paresis of one arm or leg or both and transient motor aphasia may be induced by cerebral arteriosclerosis These fleeting phenomena occur in the borderland between functional and organic disturbances Minute multiple defects in the brain substance from the arteriosclerotic process—*lacunes de désintegration cérébrale*—are responsible for the mild and transient hemiplegias of the elderly, gradually retrogressing and never inducing contracture, hemianopsia or conjugated deviation Patients who have once had this lacunar hemiplegia are liable later to cerebral glossopharyngolabial disturbances, a pseudobulbar paralysis The disturbances, however, are generally on the other side, but they prove more durable The paralyzed muscles in this pseudobulbar paralysis do not give the reactions of degeneration Contractures finally develop in the lips and tongue and the lower part of the face becomes rigid Treatment must be mainly prophylactic and psychic, reassuring the patients and regulating the diet Obstinate insomnia and headache often yield to an exclusive milk diet for a time, milk should be taken freely in all its forms, and alkaline mineral waters with a bland egg vegetable diet Potassium iodid should be given a trial in all cases of the nervous manifestations of arteriosclerosis It seems to dilate the vessels and reduce the viscosity of the blood and possibly to promote phagocytosis, it is questionable whether it has an action on the sclerotic process in the vessels but a prophylactic action in this line is plausible The iodid has to be kept up for a long time. Bing advises not to go above 0 5 to 1 gm a day and suspend for ten days after each twenty days Potassium iodid and strychnin is his favorite combination When the patient is wakeful at night and sleeps during the day, this is best combated by letting him sleep at will during the day and giving a little narcotic at night to ensure sleep Then as he sleeps less during the day, the evening dose can be increased, and thus normal sleeping habits will return Daily hot brine and mustard footbaths are useful with a tendency to congestion in the head, dizziness and headache, as also brief tepid full baths and douches followed by rubbing Carbonated baths are not always well borne The patients do best at a quiet health resort, at about 2,000 feet, sheltered from the wind and with an even climate General massage is often useful

107 **Treatment of Tabes and Paralysis**—Jadassohn discusses the conflicting views in regard to the efficacy of specific treatment of parasyphilitic nervous affections He agrees most decidedly with those who regard thorough specific treatment as indispensable if only for the reason that true syphilitic manifestations may be associated with the parasyphilitic, and these can certainly be eliminated from the picture On account of the unreliability of each alone he advises a combination of mercury iodid and salvarsan, testing the tolerance with small doses at first and then increasing to an energetic dosage, keeping up the specific treatment for a long time and repeating it occasionally during the following years, supplemented by all other therapeutic tonic and hygienic agencies He remarks in conclusion that the dangers with salvarsan treatment do not seem to be any greater with tabes and paralysis than with ordinary syphilis, and no greater than those of mercury He has witnessed the subsidence for many months of the lancinating pains and crises in tabetics given thorough combined specific treatment since the introduction of salvarsan, and he lists sixty-two physicians who have reported similar excellent results, while thirteen state that no benefit was observed The majority of authors agree that in progressive paralysis specific treatment has no favorable prospects and a number have reported damage from salvarsan

Deutsche medizinische Wochenschrift

August 8 XXXVIII No 32 pp 1481 1528

110 Objective Psychology (Was ist Psychoreflexologie?) W v Bechterew
111 Chondrectomy for Freund's Emphysema H Braun
112 *Epidemiology of Typhoid (Ueber Typhusverbreitung) G Brückner
113 Clinical Importance of Much's Granula N Körber
114 *Conditions Which Permit the Breathing of Compressed Oxygen and Changes in Lungs in Oxygen Poisoning A Bornstein and Stroink
115 Case of Addison's Disease T Klein
116 Ulnar Paralysis and Cervical Ribs (Ulnarislähmung und angeborene Halsrippe) E. Bibergeil and D Blank
117 Prophylaxis of Puerperal Fever (Zur Bekämpfung des Puerperalfiebers) L. Nieszytka
118 Electric Vibration Massage Herschel

112 **Typhoid**—Brückner reviews the data collected by the commission appointed by the government to combat typhoid The facts recorded render it more certain than ever that the sick or healthy bacillus carriers are the exclusive source of typhoid The traffic in articles of food seems to be the main factor in distribution of the disease

114 **Oxygen Poisoning**—Bornstein has been experimenting with animals to determine the conditions permitting life in an atmosphere of oxygen He knows of only one case of actual oxygen poisoning in man, and this was on himself while he was studying the subject The oxygen seemed to affect the lungs exclusively in his experiments, the alveoli were filled with effusion The experiences reported justify the conclusion that man can stand oxygen at a pressure of two atmospheres for twenty or thirty minutes without harm

Medizinische Klinik, Berlin

August 4 VIII No 31 pp 1259 1300

119 Tuberculosis of the Nose (Diagnose und Behandlung der Nasentuberkulose) O Körner
120 Excessively High Blood Pressure of Ovarian Origin (Zur Deutung seltener Hypertonien) C Schickele
121 *Perforation of Esophagus by Foreign Body Four Cases. A. T Jurasz.

122 Action of Radium on Surgical Processes (Anwendung des Radiums in der Chirurgie) A. Sticker

123 *Hysteria and General Practice (Hysterie und Praxis) A Steyerthal

124 Ultraviolet Rays in Treatment of Leg Ulcer (Behandlung der Ulcera cruris mit der Quarzlampe) E Braendle

125 Epidemic of Purpura A Ernst.

126 Microscopic Research on Action of Salvarsan on the Circulation of the Blood (Mikroskopische Beobachtungen am lebenden Tier über die Wirkung des Salvarsans und des Neosalvarsans auf die Blutströmung) G Ricker and W Knape

August 11 No 32 pp 1301 1358

127 Failing Mental Faculties in the Aged (Altersschwachsinn) I Mattauschek

128 Anemia After Tropical Diseases V Schilling

129 Skin Disease and Balneotherapy (Hautkrankheiten und Bäder) E Vollmer

130 Outcome of Operative Treatment of Chronic Inflammation in the Uterine Adnexa F Ebeler

131 The Blood Pressure During Thermal Baths (Blutdruckmessungen bei Thermalbädern und Thermal Duschemassage) I Rothschuh

132 Fatal Methyl Alcohol Poisoning (Todesfall nach dem Genuss von Methylalkohol enthaltendem Schnaps) R Schlichting

133 Wassermann Reaction no Criterion for Local Diagnosis Bruck

134 Improved Zinc Chlorid Technic for Staining Tissues (Verbesserung der Färbungen durch Fixierung des Gewebes mit Chlorzink) T Reimann and P G Unna

121 **Perforation of Esophagus by Foreign Body**—The damage was done probably as the physician pushed down into the stomach a small piece of bone which had lodged in the upper part of the esophagus of a healthy woman of 53 She succumbed to the complications of the consecutive inflammatory process In three other cases in the same clinic (Payr) two of the patients were saved by opening the thorax and esophagus The other succumbed to sepsis Only nine are known to have survived in the fifteen cases Jurasz has found on record of operative treatment of the phlegmon following the perforation

123 **Hysteria.**—Steyerthal insists that the term hysteria should be discarded Its use in general practice leads only to misunderstandings Congenital mental or psychic inferiority on the one hand and acquired weakness of the nerves, on the other hand, make up the kaleidoscopic picture which we call hysteria The term should be dropped not only for humane reasons but for the prestige of the profession and medical ethics

Münchener medizinische Wochenschrift

August 6 LIX No 32 pp 1745 1792

135 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis and Bronchiectasia (Ueber den künstlichen Pneumothorax bei Lungentuberkulose und Bronchiektasien) I Volhard

136 Serologic Diagnosis of Tuberculosis with Combined Tuberculin and Tissue Extract (Die Komplementbindungsreaktion bei Tuberkulose) C Hammer

137 Elective Culture Media for Cholera Germs (Choleraelektivnährboden) A Dieudonné and K Baerthlein

138 Hecht's Modification of the Wassermann Reaction G Brendel and H Müller

139 Inhibiting Influence of Cholesterin on Paroxysmal Hemoglobinuria (Beeinflussung des hämoglobinurischen Anfalles durch Cholesterin) J Pringsheim

140 Prophylaxis of Tuberculosis in Children (Bekämpfung der Tuberkulose im Kindesalter) V Leube Commenced in No 31

141 Epilepsy (Die Epilepsie als klinischer Krankheitsbegriff) L. W Weber Commenced in No 31

142 Anaphylactic Reaction of the Lung E Friedberger and H Ströbel

143 Forty Years of Official Organization of the Profession in Bavaria (Vierzig Jahre staatliche ärztliche Organisation) W Mayer

August 13 No 33 pp 1793 1840

144 Expectant Treatment of Eclampsia (Die abwartende Eklampsiebehandlung) F Lichtenstein

145 Danger of Overestimating Importance of Wassermann Reaction in General Practice (Was nützt die Wassermannsche Blutprobe in diagnostisch zweifelhaften Fällen dem praktischen Arzt?) L. Roemheld

146 Talipes Cavus Traceable to Occult Spina Bifida Two Cases (Der Klauenhohlfuss) E Ribergell

147 *Fracture of the Fingers G Hohmann

148 Unfavorable Experiences with Eucalyptus Oil Innunctions in Scarlet Fever and Measles (Milne) M Kretschmer

149 Delicacy and Reliability of Salkowski's Test for Mercury in the Urine J Abelin

150 Color Reaction of Skin Secretions Over Tuberculous Areas in Lung (Eine Farbenreaktion des Hautsekretes über tuberkulösen Lungenabschnitten) C Fischer (Montana)

151 *Danger of Encountering Anaphylaxis in General Practice (Anaphylaxiegefahr in der Praxis.) A. Wiedemann

152 General Principles for Social Hygiene Sexual Enlightenment (Sexualpädagogische Fragen) K Grassmann

147 **Fracture of the Fingers**—Hohmann shows by a practical example the necessity of tying a broken finger to its sound neighbor as otherwise the finger is liable to grow crooked The displacement from the dressings caused this in his case compelling operative correction later

151 **Danger of Anaphylaxis**—Wiedemann reports a case of threatening anaphylaxis in a boy under 4 years following the internal administration of diphtheria antitoxin, two years after subcutaneous injection of the same If help had not been constantly at hand the disturbances would probably have proved fatal The antitoxin internally administered failed to display any influence on the laryngeal diphtheria but the anaphylactic symptoms developed very severe the following day although beef antitoxin had been substituted for horse antitoxin when the disturbances were noted He urges the necessity for three sources for diphtheria antitoxin, as the only means to be sure of avoiding the perils of anaphylaxis.

Wiener klinische Wochenschrift, Vienna

August 8 XXV No 32 pp 1215 1246

153 Operative Treatment of Acute Circumscribed Phlebitis K Büdinger

154 Nodose Erythema and Tuberculosis R Pollak

155 *Paratyphoid Pyelonephritis with Kidney Calculi B Roman.

156 Accessory Mammary Glands (Zur Kasuistik der sogenannten akzessorischen Milchdrüsen) M Fischer

157 *The Phthalein Test of Kidney Function F Deutsch

August 15 No 33 pp 1247 1278

158 Synthetic Antigens for the Meiostagmin Reaction with Cancer G Izar

159 Central Innervation of the Bladder (Beitrag zur Physiologie des Zwischenhirnes) R Lichtenstern

160 Malformations Simulating Picture of Banti's Disease (Fall von Persistenz der Vena umbilicalis mit anderen Anomalien unter dem Bilde des Morbus Banti) W Benque

161 Manic Depression and Periodical Insanity as Manifestation of Catatonia M Urstein

162 Prophylaxis of Malaria in Italy S Obst

163 Peptolytic Ferments in Lumbar Puncture Fluid (Vorkommen von peptolytischen Fermenten in der Lumbalflüssigkeit) S Szecsi

164 Action of Cancer Juice on Cancer (Zur Einwirkung des Karzinompresssaftes auf Karzinom und zur Oxyproteinsäurevermehrung bei Karzinom) H Salomon and E Freund. Commenced in No 31

155 **Paratyphoid Pyelonephritis.**—The cadaver of a woman of 43 presented kidney calculi and pyelonephritis due to the paratyphoid B bacillus although apparently free from paratyphoid lesions Roman discusses the mechanism of the infection and compares the case with others on record in which the paratyphoid bacillus was found in local suppurations In Chon's five cases of the kind the meninges were the seat of the suppuration and the patients were all infants

157 167 **Phthalein Test of Kidney Functioning**—Deutsch tabulates the details of thirty two cases of kidney disease in which he applied the Rowntree and Geraghty test The results he says, confirm the value of the test both for diagnosis and prognosis (It was described in The Journal 1912 lviii, 1038) Sehrt's impressions are equally favorable

Zentralblatt für Chirurgie, Leipsic

August 10 XXXIX No 32 pp 1089 1120

165 Technic for Diagonal Suture (Die Diagonalnaht) G Sultan

166 Rupture of the Combined Gastrocnemius and Soleus (Subkutane Ruptur des Triceps surae) L Sehrt

August 17 No 33 pp 1121 1152

167 *Advantages of the Phthalein Test of Kidney Function (Die Phenol sulfo-phthaleinmethode zur Bestimmung der Nierenfunktion) E Sehrt See Abstract 157

168 Technic and After Treatment of Resection of the Knee W Kausch

August 24 No 34 pp 1153 1184

169 Improved Technic for Suture of Vessels II (Zur Technik der Gefässnaht) E Jeger and H Lampl

170 Ligation of Subclavian Artery (Die Unterbindung der A. subclavia sin in ihrem I Abschnitt) Wieting

171 Disadvantages of Iodin Sterilization During Operations on Gastro Intestinal Canal (Zur Frage der Jodierung bei Operationen am Magen Darmtrakt) L. L. Fieber

Zentralblatt für Gynäkologie, Leipsic

August 10 XXXVI No 32 pp 1041 1072

172 Treatment of Retroflexed Uterus. A Mayer

173 *Postural Protection of Perineum (Ueber eine weitere Anwendung der Beugelage beim Dammschutz) M Samuel

174 Rapid Dilatation and Evacuation of the Uterus (Zur schnellen Erweiterung der Gebärmutter nebst einigen Bemerkungen zur Technik der Ausräumung) E Herz

August 17 No 33 pp 1073 1096

175 Bacteria in Field of Operation and Their Significance for the Postoperative Course in Gynecology (Ueber den Keimgehalt des Operationsfeldes bei gynäkologischen Laparotomien und seine Bedeutung für den postoperativen Verlauf.) E Holzbach

176 Draining After Extensive Operations for Uterine Cancer (Drainage und Freund Wertheim'sche Karzinomoperation) W Liepmann.

177 Inhibiting Action of Hypophysis Extract on Abortion Three Cases. (Eine ungewöhnliche Wirkung des Hypophysen extraktes auf den gebärenden Uterus.) R Patek

August 24 No 34 pp 1097 1136

178 What the Peritoneum will Stand. (Was verträgt das Bauch fell was verträgt es nicht?) A Sippel

179 Improved Technic for Operative Treatment of Vulvar Cancer (Wie lassen sich die Dauerresultate bei der Operation des Vulvakarzinoms verbessern?) W Stoeckel.

180 The Artificial Menopause After Removal of Uterine Adnexa (Zur Bewertung des Ausfallserscheinungen nach Radikal operationen bei entzündlichen Adnexerkrankungen) H Thaler

181 Artificial Vagina Made from Rectum. (Vaginaldefekt und Scheidenbildung aus dem Mastdarm) G Schubert

173 **Postural Protection of Perineum.**—Samuel four years ago called attention to the advantages of the woman's aiding straining during the second stage of labor by clasping her hands under her knees, her legs flexed on the abdomen as she lies on her back This not only enlarges the pelvic outlet but it reenforces her straining efforts while reducing the intensity of the pain He is convinced that this position will materially reduce the necessity for operative measures The knees can be clasped in the same way with the patient lying on her side and this has superior advantages when the head presents As this stage approaches, he has the woman lie on her side, and pull on her knees until the obstetrician can get hold of the chin through the posterior perineum The woman must then release her knees and partly straighten the legs, the nurse holding the flexed knee of the upper leg about a foot above the level of the bed This permits the head to be slowly and cautiously worked loose through the perineum by the obstetrician alone, the mother keeping entirely passive He gives two illustrations of the method, and declares that it will certainly materially reduce the number of cases of perineal tears

Gazzetta degli Ospedali e delle Cliniche, Milan

August 4, XXXIII, No 93 pp 961 976

182 *Pellagra (Osservazioni critiche a proposito del problema eziologico della pellagra) E Bertarelli

183 Postoperative Dilatation of the Stomach Immediate Cure by Change to the Prone Position. (Caso di gastroplegia post operatoria) G Scola.

August 6 No 94 pp 977 984

184 Splenic Anemia in Girl of 3 Improvement Under Roentgenotherapy G Raffaelli

August 8 No 95 pp 985 992

185 Resistance of Blood Corpuscles in Acute Infections. (Sul comportamento delle resistenze globulari nelle malattie acute d infezione) P Biffis

August 11, No 96 pp 993 1008

186 *Tuberculous Peritonitis and Operative Treatment. (Tuber colosi peritoneale e sua cura chirurgica) G Bagozzi.

August 13 No 97, pp 1009 1016

187 *Epinephrin Organotherapy in Tuberculosis (Dell opoterapia surrenale nella tubercolosi polmonare) T Silvestri.

August 15 No 98 pp 1017 1024

188 Tonometric Findings Under Inhalation of Tobacco Smoke P Biffis.

August 18 No 99, pp 1025 1040

189 Vital Staining of the Blood (Ricerche cliniche sulla sostanza granulofilamentosa dei globuli rossi colorabili a fresco) L. Cecconi.

August 20 No 100 pp 1041 1048

190 Gastric Ulcer (Sull ulcera dello stomaco) G Stradiotti

August 25, No 102 pp 1057 1072

191 *The Malaria Problem D Carazzi

192 Artificial Pneumothorax in Treatment of Pulmonary Tuber culosis. C Molon

182. **Pellagra.**—Bertarelli thinks that not enough attention has been paid to recent research on pellagra by certain Italians, notably Tizzoni's success in transmitting pellagra to monkeys, and his specific precipitin reaction, Vallardi's serodiagnosis of pellagra by the fixation of complement test and Volpino and Magri's experimental work. The work of Sambon and Alessandrini has received more attention and especially the statement that pellagra has been encountered in persons who have never eaten corn Research in this line is particularly important and should be undertaken by physicians who live in pellagra infested regions Volpino states that pellagrins seem to possess a specific anaphylactic sensitiveness to subcutaneous injection of extracts of spoiled corn If these statements are confirmed this will prove a strong link in the chain of the corn theory, as also the fact that no new cases of pellagra seem to develop in the regi whic the government has instituted measures to prevent the use of spoiled corn The old pellagrins are gradually dying off and no new cases can be found although, except for the hygiene of the maize, the habits and customs have remained the same in the community It is difficult to reconcile the lack of new cases with the infectious theory, as the old pellagrins persist in sufficient numbers to prove an ample source for infection if such were possible, and nothing has been done to remove any other factors of the infection if such exist The evidence to date, Bertarelli adds, seems to be in favor of the assumption that pellagra is an intoxication, and that although the old pellagrins still remain in the environment, yet no new cases develop as the source of the intoxication—the spoiled corn—has been done away with The whole question is now in the hands of the general practitioners in regions infested with pellagra, to their critical observation and compilation of facts we must look to decide the question once for all

186 ***Operative Treatment of Tuberculous Peritonitis.***—Bagozzi is convinced that old peritoneal effusions lose their bactericidal power but if they are evacuated and new effusions form, this brings an influx of new bactericidal influences This is his explanation of the benefit unmistakably derived from operative measures in many cases of tuberculous peritonitis In the last ten years an operation was undertaken in 187 cases of the kind at the Milan hospital, the mortality was 25 per cent as such patients were not referred to the surgical service until all other measures had been tried and failed, and in a number of the fatal cases other organs were involved in the tuberculosis He states *that the ultimate outcome* was known to be very favorable in a large proportion of cases No other measure gives comparable results, but involvement of other organs is an absolute contra indication The best time for the operation is after the acute febrile stage, the end of the first period, but without waiting until the patient becomes debilitated and loses flesh or other organs become involved Improvement or a cure was realized in both forms of tuberculous peritonitis, with and without effusion One patient with a fibrinoplastic tuberculous peritonitis recovered completely after a simple laparotomy The changes set up in the tissues evidently rouse the defensive powers and the organism grapples anew with the infection and this time may conquer

187 **Epinephrin Organotherapy in Pulmonary Tuberculosis.**—Silvestri thinks that the condition known as the phthisic habitus must be due in part to defective functioning of the ductless glands and that this is an important factor in the course of pulmonary tuberculosis On these premises he has applied adrenal extract as an adjuvant in the treatment of fourteen tuberculous patients, especially in the incipient cases, and states that in ten the results surpassed all anticipations He used a commercial preparation in some cases and in others the fresh suprarenal capsule The improvement in two typical cases reported has been progressive during the year since this treatment was instituted and a complete cure seems at hand In one of the cases the gravity of the symptoms when the patient was first seen, the progressive improvement and prompt aggravation of symptoms when epinephrin treatment was suspended for a time, with return to progressive improvement when it was resumed again—all point to a specific influence from the treatment He gave calcium salts at the same time, but these alone did not benefit Only when the adrenal extract accompanied the calcium did the latter seem to be utilized Primary or secondary insufficiency of adrenal functioning he thinks is the rule in pulmonary tuberculosis as also abnormal utilization of calcium both of which are combated by the adrenal-calcium treatment

191 **The Malaria Problem**—Carazzi presents evidence to sustain his assertion that in all probability man is merely an incidental host for the malaria germ Some animal must be the habitual host, and until this animal is discovered all attempts to eradicate malaria are liable to fail Certain facts observed suggest that possibly the bat may prove to be this third host, as this is known to harbor a parasite extremely similar to t ria Search should be made for this third host erm, in in particular

whether certain species of small mammals, bats, birds, night hawks, etc, can be found in malarial countries and not elsewhere, and experimentally, feeding them with infected anopheles

Policlinico, Rome

July 21 XIX No 30 pp 1077 1112

193 Postoperative Tumors in Abdominal Wall Two Cases (Tumori inflammatori cronici postoperatori delle pareti addominali) G Soluro

July 28 No 31 pp 1113 1148

194 Polycythemia (Della policitemia rubra) M Ferretti
195 Intravenous Injections of Mercuric Chlorid in Treatment of Typhoid and Erysipelas G E Benzi and P Ercolani

August 4 No 32 pp 1149 1184

196 Physiologic Action of Oxygenated Baths L Coleschi
197 Hernia of the Ureter Two Cases G Morandini
198 Terminal Tuberculosis G Jona

August 11 No 33 pp 1185 1225

199 *Chemotherapy of Experimental Cancer L. Grillo
200 Resisting Powers of the Blood Corpuscles in Acute Infections (La resistenza globulare nelle malattie acute da infezione) G Ayala
201 Principles for Treatment of Pulmonary Tuberculosis with Artificial Pneumothorax U Carpi

August 18 No 34 pp 1226 1260

202 Hemorrhoids in Connection with Gastric Disturbances (Le emorroide nelle malattie gastriche) V Cominotti

199 **Chemotherapy of Experimental Cancer**—Grillo reports from the laboratory in charge of Gosio that experiments with the various methods of chemotherapy recently introduced by Wassermann, Neuberg and others have given good results, confirming the assertions of the German writers But he found that a simpler technic seems to be equally successful, the mouse carcinomas subsiding effectually under a simple 1 per thousand solution of the tellurite in physiologic solution He inoculated about fifty mice as controls to study the spontaneous evolution of the carcinoma, in none of these animals was there any sign of spontaneous retrogression of the tumor such as was evident in the animals injected with the tellurite (Compare with editorial in The Journal Aug 31, 1912, p 724)

Semana Medica, Buenos Aires

June 27 XIX No 26 pp 1183 1236

203 Fracture of the Olecranon (Fracturas del olecrano) I Bard
204 Hypophysis Extract in Therapeutics (Aplicaciones terapeuticas del principio activo kinomiocinetico de la hipofisis) M I Puiggari
205 Origin and Dietetic Treatment of Mucomembranous Enterocolitis J R Goyena

July 4 No 27 pp 1 48

206 Experiences with Salvarsan in Syphilis (Experiencia de un año con el 606) J N Losadas
207 Dosage by Age (De como hacer y recordar una tabla de dosificacion por edades) N C Capece

Hospitalstidende, Copenhagen

August 14 LV No 33 pp 905 928

208 Case of Pigmented Urticaria H Boas

August 21 No 34 pp 929 952

209 *The Reaction of the Blood. (Blodets Reaktion) C Lundsgaard

August 28 No 35 pp 953 976

210 Traumatic Pseudomeningocele A Helsted

209 **The Reaction of the Blood**—Lundsgaard discusses the value of the various methods in vogue for estimating the reaction of the blood and describes the results of his own efforts to determine the normal standard under standard conditions of temperature etc His research confirms anew the constancy of the reaction of the blood which, he states, is a trifle toward the alkaline side of the neutral point

Hygiea, Stockholm

July LXXIV No 7 pp 737 848

211 Repeated Laparotomies (Om tidiga relaparotomier) L Norrlin
212 Syphilis in Animals (Om syfilis hos djur) J Almkvist
213 Pathogenesis of Tabes. (Nagra nyare studier till tabes patogenes) N R L Antoni

211 **Opening the Abdomen Again.**—Norrlin reports in detail twenty cases in which the abdomen had to be opened again for various reasons before the laparotomy wound had healed Some are instructive from the mistakes made at the first laparotomy In some cases the lesions were unusually severe so that the mortality of 50 per cent in these early relaparotomies is not surprising In seven cases the trouble had been gangrenous appendicitis In another case the assumed appendicitis proved apparently to be cancer with involvement of neighboring lymph nodes Necropsy, however, revealed that the trouble was a tuberculous process. The case teaches the danger of neglecting minute investigation of the previous history, and the difficulty of a correct diagnosis even with the abdomen open before one Another patient passed through three laparotomies in three days and had another later, emerging finally cured from the results of injury of the abdomen from a flying chip of metal

Norsk Magazin for Lægevidenskaben, Christiania

August LXXIII No 8 pp 1109 1268

214 *Chronic Duodenal Ulcer and Its Early Diagnosis (Det kroniske Duodenalsaar og dets Frühdiagnose) O Borchgrevink.
215 Tuberculosis at Christiania (Lungetuberkulose i Kristiania 1901 1910) Y Ustvedt
216 Anatomic Findings with Epilepsy and Microcephaly (Anatomiske fund ved enkelte sjeldnere hjernesygdomme) F Harbitz
217 Surgery of the Pericardium H Wille

214 **Chronic Duodenal Ulcer**—Borchgrevink devotes sixty eight pages to this study based on twelve cases The previous history suggested the diagnosis in every instance with one exception In nine cases it was confirmed by the operation and in two at necropsy The first symptoms had been observed from twenty to twenty six years before in four patients, from eight to eleven years in three, and from three to six years in four In one case the first attack of pain had occurred only two weeks before The pain in all the cases was in the epigastrium, but it radiated differently in different patients, spreading to the back, right side of abdomen, genitals or breast There was tenderness in the right epigastrium only in two cases The periodicity of the attacks and the change from the severe pain to long intervals of total freedom from pain were pronounced and characteristic. Two patients suffered from vomiting and five had hemorrhage, three succumbing to the loss of blood The tendency to hemorrhage was first observed in the twentieth, eighteenth, sixth, fifth or third year after the first symptoms In seven of the patients the attack of pain came on between one and a half and two and a half hours after the meal, in another about forty five minutes after the meal, reaching its height in less than two hours Exercise seemed to bring on the pains earlier than when the patient was at rest The objective findings were less instructive than the subjective Gastric secretion did not seem to be influenced by the ulceration in the duodenum but the motor functioning of the stomach was inclined to be abnormally active As time passed the free intervals became shorter and the pain developed earlier after the meals A duodenal ulcer may set up hemorrhage in consequence of the influence of an operation elsewhere in the abdomen In regard to medical treatment of duodenal ulcer he reminds us that we have to do here with an affection which may have months and even years of free intervals, so that the assumption of a cure under internal measures may prove in the end to be erroneous At the same time, medical measures may arrest various symptoms, the pains subside while the patient stays in bed Dieting has also a favorable influence, especially restriction to milk In one old case the symptoms recurred with unusual severity, and the patient found that temporary abstention from all food gave the most relief Sodium and bismuth were the most effectual drugs but even these often failed The cure has been complete to date in all his operative cases

Ugeskrift for Læger, Copenhagen

August 15 LXXIV No 33 pp 1175 1204

218 Two Cases of Ureterocele V Meisen

August 22 No 34 pp 1205 1234

219 Valvular Action as Cause of Inflammatory Glaucoma (Om en Klapvirkning at Vortexsinoskleralpladen som Aarsag til det saakaldte inflammatoriske Glaukom) C F Heerfordt

Upsala Läkareforenings Förhandlingar

XVII No 7 pp 477 560 Last indexed July 6, p 78

220 Successful Operation for Brain Tumor (Ett med lyckligt utgång opereradt fall af intrakraniell tumör) H C Jacobæus and G Nyström
221 Chemistry of Homogentisic Acid I (Ytterligare bidrag till kännedomen om homogentisinsyrans kemi. I) C T Mörner

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ing medical schools and universities must provide postgraduate opportunity for the study of ophthalmology.

To provide adequate equipment for the undergraduate would require an extension of the time now allotted to the medical course. Indeed, the extension of the course in our leading medical schools to five years is now under serious consideration, though it is urged that the young physician will be too far advanced in years before entering on the practice of his profession. If a postgraduate course in ophthalmology is to be required before the student is allowed to employ his ophthalmic knowledge in practice, at least one additional year must be added to his life as a student.

The leading university medical schools should provide a complete course of didactic study with ample clinical facilities as a postgraduate department, for which a degree either of Doctor of Philosophy or of Doctor of Ophthalmology should be awarded. Such provision would in a single generation remove the unfortunate conditions described by Dr. Jackson and lead to a rapid advance in the science of ophthalmology and great benefit to the people.

Dr. F. C. Todd, Minneapolis: In the matter of teaching undergraduates we have to bear in mind that we are undertaking the preparation of general practitioners, in which we are expected to teach the student, first, those things in ophthalmology which have a relation to, or a bearing on, the diseases of a more general character. Thus, for example, he should be taught ophthalmoscopy that he may be able better to make diagnoses. I dare say that to-day in many schools things are being taught in such departments as medicine and neurology that will prove of less value to the practitioner when dealing with his patients and endeavoring to make a diagnosis than would be a sufficient knowledge of ophthalmology, which the time now allotted the subject does not permit. Second, if the general practitioner is to serve his community properly, he must learn to treat the common and simple eye diseases which he may safely treat. Third, he must have sufficient knowledge to diagnose properly those diseases which might produce blindness, that he may send them to an expert or treat them himself in such a manner as to prevent blindness, or at least not to cause it by improper treatment. And he must be prepared to do the [illegible] that will come his way. He must, for instance, [illegible] expert at hand, know how to do promptly [illegible] prolapse of the iris has occurred as [illegible] penetrating wound of the cornea.

[illegible] more eyes becoming blind to-day [illegible] and training of our general practitioners in ophthalmology than result from ophthalmol[illegible] that [illegible] in our country.

[illegible] we must [illegible] part and [illegible] until [illegible]

training, so to speak. I favor adding a year to the course of training in ophthalmology. During my pupilage at Jefferson thirty years ago, when the eye clinic was on, the boys would disappear. It was entirely too dry. In my judgment the study of ophthalmology is so important that we cannot allow specialists to be created in large numbers unless they are properly qualified. I would be in favor of making a special course as has been outlined by Dr. Jackson, and at the end of that time having the man who aspires to practice ophthalmology pass a special examination by a special board, and after the successful passage of that examination to have a certain degree, say, for instance, "O.S." (Ophthalmic Surgeon) or Oph. (Ophthalmologist) or something of that kind. Every peddler around the corner is selling specs. We must fight the optometrists and the optometry course in the schools. Thirty-three in the class at Columbia University! Think of it!

Dr. Edward Jackson, Denver: The question of lengthening the period of student life is a very serious one. In the National Educational Association a committee has been for some years working on the problem of the reorganization of secondary education with the idea of getting students into college earlier and condensing the ordinary college course. The plan has been adopted first in the University of Michigan, and afterward in some of the other universities, of requiring a six years' course to cover the work both for the A.B. and for the M.D. degrees, principally by recognizing that a large part of the medical course may have a cultural value that should entitle the student to recognition as a scholar for the bachelor's degree.

If the student enters college at 17 and pursues there a six years' course he will take his degree at 23, and then adding a year of work in ophthalmology he will be ready for active work at the age of 24, and that probably is pretty nearly the average age at which a student should enter into practice. Much could be said for thorough training in other branches of medicine to fit us for the practice of ophthalmology. But the public deserves the benefit of the special knowledge which the oculist is supposed to possess, which is his particular *raison d'être*. The thing that has been greatly neglected up to the present time, the training in ophthalmology itself, needs to be greatly emphasized now.

I think the situation is far from being as hopeless as Dr. Risley seems to believe. The course in ophthalmology in Oxford University has in a way been successful, although conditions there are not favorable to success on account of the situation and traditions of Oxford. The University of Liverpool, a younger but important technical institution, is giving a similar course.

In this country the University of Colorado has undertaken to give such a course, based on a year of clinical work and the necessary teaching, to give the degree of doctor of ophthalmology. This is the degree that is given at Oxford. Probably within three years two or three other of our best universities and medical schools will have established similar courses. From the very wide spread of interest that has been [illegible] I am certain that the time has come for such a [illegible] and it will be supported. We can all have [illegible] our approval in the medical profession [illegible] In the House of Delegates [illegible] action was taken last year [illegible] two years [illegible]

CATARACT EXTRACTION WITH CORNEAL SUTURE

E. C. ELLETT, M.D.

MEMPHIS, TENN.

[illegible]

tival flap, or direct suture of the wound, and it is with the latter alone that this paper will deal. The sutures have been applied either to the conjunctiva or the cornea

The first published description of such attempts is that of H W Williams[1] of Boston, who placed sutures through and through the lips of the corneal wound after extraction of cataract, and reported favorable results He later modified this to the extent of placing the suture in the conjunctiva only We occasionally hear yet of similar efforts, but as this method is resorted to after the completion of the operation, it has seemed objectionable, in that if a cataract extraction has been completed successfully most surgeons are willing to omit any finishing touches, especially as a well-made conjunctival flap quickly smooths itself out and adheres to the sclera without other assistance than the pressure of the lid If the operation has not been satisfactorily accomplished, and especially if there has been loss of vitreous, the surgeon is even more anxious to close the eye without the addition of any manipulation that can be omitted For this, or other reasons, suture of the conjunctival flap has never been popular The first attempts at corneal suture, also accomplished after completion of the extraction, were open to the same objections

Probably with the idea of avoiding these objections, Suarez de Mendoza[2] devised a plan of introducing a suture into the cornea before making the corneal suture, and in 1889 and 1891 published reports of thirty-eight operations performed in this manner He made a shallow incision into the surface of the cornea about where the incision for the extraction of the cataract would fall, and then passed the suture through the lips of this groove, the loop of the suture being drawn well out to escape being cut The incision was then made to face in this shallow groove After the extraction the suture was tied It will be seen that this suture did not penetrate the cornea, but was passed into it only, and was not open to the objections that would apply to a through and through suture

The most noteworthy work by far with the corneal suture as a step in cataract extraction is that of Professor Kalt[3] of Paris His publications on the subject consist of two papers, dated 1894 and 1910 In the first one the results in fifty cases are given, while the second paper gives 2,000 It is with this method that this paper has to do

In common with others I knew vaguely of the Kalt operation, but I was, also in common with others, not especially impressed with its advantages, while I was very much impressed with the desire to make the operation as simple as possible, and to omit all apparently unnecessary detail In the summer of 1910 it was my privilege to see Professor Kalt's work, and the skill of this operator made the procedure seem so easy that I was tempted to try it, with the results that will be related While the experience about to be related is very limited, still one learns something from even a limited experience, and this experience may be of interest inas much as not very many have apparently given the method a trial

A good idea of the procedure itself and its philosophy is to be gained from Kalt's last paper, from which the following extract is taken

> PLACING THE SUTURE
>
> The suture consists of a vertical corneal portion and a transverse episcleral portion. The whole forms a T, with a gap between the junction of the horizontal portion with the vertical portion The length of each of these portions does not exceed 1 mm The vertical intracorneal branch follows the vertical corneal meridian and stops exactly at the juncture of the transparent portion with the sclera The horizontal portion traverses the opaque part of the limbus as near the cornea as possible An interval of 0 5 mm corresponding to the limbus is ample to permit the passage of the knife

Not to quote verbatim the rest of the paper, it is stated that in passing the suture the corneal portion (vertical) is passed first The loop of the suture is left long and laid to one side, and if wet will adhere to the skin, or to the gauze with which the skin is covered, and not get tangled In passing the knife, the incision may be completed in an oblique meridian of the cornea instead of the vertical, thus rendering the cutting of the thread less likely The corneal incision, capsulotomy and delivery of the lens being completed, the thread is drawn by pulling on its upper (scleral) branch, and a square knot is tied If this suture is well placed, and the points are close to each other, tying does not cause much folding of the cornea, but it is of no matter if it does, as the postoperative astigmatism is not affected thereby Prolapse of iris and vitreous, if they occur are reduced by tying the suture and thus approximating the corneal wound "The knot once tied, one is master of the situation" Cortical masses are removed with a suction aspirator, and the iris smoothed into place without fear of provoking loss of vitreous Physostigmin (eserin) may be used when the iris tends to prolapse, but is not as a rule The dressing is monocular, and patients get up on the second day The stitch is removed on the second or third day, usually the latter

To consider the proposition in some detail, a discussion of the following points will cover the ground

I The introduction and removal of the stitch
II Accidents
III The control of iris and vitreous prolapse by the stitch
IV The toilet of the wound
V Secondary iris prolapse after corneal suture
VI The course of healing
VII Results

I THE INTRODUCTION AND REMOVAL OF THE STITCH

Nearly every one who has written concerning the corneal suture speaks of the difficulty of introducing it that it adds a step to the operation, and that its removal is a second operation Thus Van Lint[4] says that it is "an operation which is difficult of execution," and others say the same thing Fully conscious of my own limitations as regards operative skill, I can state that any one who is qualified to do ophthalmic surgery at all need not be deterred from trying this procedure on account of the difficulties of carrying it out The proper materials must be used, but with them the corneal suture is surprisingly easy The proper needle and thread must be employed, however and here it might be said that the suggestion to employ an absorbable suture is based on theoretical reasons only, as the finest catgut obtainable will not pass through the eye of the right sort of needle While Kalt advises cotton, the suture material which may be obtained from Luer is silk, and is perfectly satisfactory

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[1] Williams H W Roy Lond Ophth Hosp Rep 1867 vi Part 1 Cataract Extraction Operations, Arch of Ophthalmology and Otology 1869 i 102.

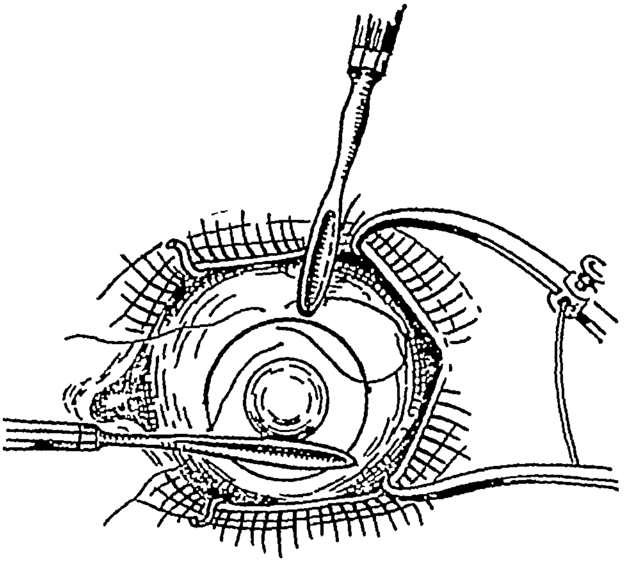
[2] Ferdinand Suarez de Mendoza Bull et mem Soc franc d'ophtal, Dec 4 1888 Rec d'ophthal 1889 pp 47 523 544 Rec d'ophthal 1891 p 597

[3] Kalt E Arch. Ophth. 1894 xxiii, 421 Ann d'ocul., June 1910

[4] Van Lint Clin Ophth, III No 7

It is not necessary to tell the patient that his eye is being sewed up While it may be the operator's five hundredth extraction, the patient has had no such extensive experience, and does not readily detect slight variations from the usual technic So when the time comes for its removal, the eye can be cocainized and the patient then told that there is a thread to come out, the lid raised and the suture cut and removed in less time than it takes to tell of it Accustomed as he is to hear of wounds being sewed, it will seem most natural to the patient that this wound has been treated in that manner Many people dread the removal of stitches more than they do an operation, and it is well not to alarm them by telling them that there is a stitch in the eye that must come out on such and such a day All this seems a trivial matter to discuss before a scientific body, but it is the answer to the objection that removal of the stitch is a second operation At least it is not so unless the operator chooses to make it so

In tying the stitch there is an advantage in producing a slight wrinkling of the cornea, as by this means one can be sure that good apposition is secured Not only is this wrinkling temporary, but it even passes off under the pressure of the aqueous when the anterior chamber reforms A loosely tied stitch, such as some have practiced, is of no advantage at all, as without some tension on the edges of the wound, they only lie in apposition just as they would do without any stitch



Corneal suture introduced but not tied

The stitch should be removed as soon as the corneal wound is well adhered, which can safely be considered as about twenty-four hours after the anterior chamber is reformed This gives a good margin, and will be as a rule on the third day Stitches are foreign bodies and should be removed from every tissue at the earliest possible moment, not only in eye surgery, but elsewhere To permit them to remain is to invite irritation and infection, neither of which seem to occur when the stitch is removed as soon as Kalt advises

II ACCIDENTS

The only accidents likely to happen, besides the ones common to all cataract extractions, are cutting the stitch in making the corneal incision and tearing out the stitch in removing the speculum Kalt cuts the stitch in 1 per cent of cases, and in the series of cases herewith presented it was cut twice It can be replaced by passing the needle through the same hole, which is easier to do than it sounds, and is what Kalt advises

If the thread is not kept carefully laid out the loop may catch in the speculum and be torn out in removing that instrument, as occurred in one of my cases It must be understood that this can occur only when the speculum is removed before the suture is tied If the patient does not tend to squeeze and there is no threatening vitreous prolapse, the speculum is left in until the lens is removed and the thread tied and cut off In the event of this accident it is best to pull out the other branch of the stitch and complete the operation without it Both of these accidents can be avoided if the whole procedure is carefully conducted

III CONTROL OF IRIS AND VITREOUS PROLAPSE

A signal advantage of the stitch is in cases of prolapse of iris and vitreous, especially the latter, at the time of operation The usual precautions of removal of the speculum and control of the lids by other methods are to be followed, but nevertheless sometimes a large vitreous bead will protrude from the wound No one who has ever seen this gently retire into the ball as the stitch is tightened will need any other argument to convince him of the value of the stitch, at least under these circumstances As it cannot be foretold when this accident will happen it is well to be prepared for it in every case

The control of primary iris prolapse is not so satisfactory, but certainly the replaced iris is more apt to stay *replaced when the corneal wound is closed by mechanical* means In this operation the fact that the incision is in corneal tissue and well in front of the plane of the iris makes prolapse of the iris less likely to occur than when the incision is further back as in the ordinary section with the conjunctival flap

IV THE TOILET OF THE WOUND

A great advantage of the corneal stitch is in the facility it affords to the making of a deliberate, careful and thorough toilet of the wound After the delivery of the lens and tying of the stitch, we can, by irrigation, suction and manipulation, get a perfectly clear pupil—clearer than by any other means Without the stitch one hesitates to do much in this direction if there has been vitreous prolapse, and if there has not been, the manipulations of the toilet often provoke a tendency to "squeeze" which results in prolapse Certainly nothing contributes so much to a speedy and uneventful healing as removal of cortical flakes and tags of capsule, and their retention within the eye leads to prolonged convalescence and irritation, if not destructive plastic inflammation

As was mentioned, the suction apparatus is the means usually employed by Kalt, but irrigation is also very safe and satisfactory The tip of the irrigator is introduced into the anterior chamber at one side of the stitch, while a spatula depresses the scleral lip of the wound on the other side of the stitch, to afford a free outflow of the irrigating fluid and the cortical matter and blood which it expels It might be noted incidentally that the possibility of this thorough toilet makes the removal of immature cataract a much more satisfactory procedure than when it is extracted in the ordinary way

V SECONDARY IRIS PROLAPSE

The stitch is not a sure protection against secondary prolapse Kalt has observed it in 3 per cent of the last 1,100 cases which he reports, while the percentage in this series of cases is much higher, namely, 9⅓ per cent, owing, presumably, in part at least, to lack of skill

After an ordinary simple extraction prolapse of iris is the most frequent complication, and occurs in about 10 per cent to 12 per cent of cases When it does occur it tends to rapidly assume large proportions, and its removal is a more formidable procedure in many cases than the extraction of the cataract The iris quickly adheres to the lips of the wound, and iridectomy under these circumstances is far from easy, and the result is not satisfactory to our esthetic sense Rarely does one see under these circumstances a clear coloboma, with pillars straight and not entangled in the corneal wound Without offering an explanation of the difference, it can only be said that the prolapse after suture of the cornea is not only small—limited to one side of the stitch—but does not tend to inflame and quickly adhere to the wound Its removal, therefore, is easy, and the pillars dress back nicely into the eye, leaving the wound free One may not understand the reason of this difference, but from my experience such is the case One of the patients referred to in this paper struck his eye a week after extraction, separated the wound slightly and had an adhesion of the iris to the wound This was not a prolapse into the wound, and at any rate was not attributable to the method of operation

The number of cases of iris prolapse in this series is large, namely, 9⅓ per cent, and greater familiarity with the operation would probably reduce that To offset this, Cases 2 and 7 should be noted In Case 2, the conduct of the patient was such as to justify the removal of the speculum after completion of the corneal incision She promptly squeezed the lids together catching the corneal flap with the upper lid and turning it down After securing the lid with an elevator the lens was delivered and the stitch tied Deliberate toilet of the wound was then made without fear of accident, and the final result was perfect In Case 7, the patient had violent uremic convulsions the night of the operation Next morning the nurse had prepared, without instruction the instruments for excision of an iris prolapse, it being inconceivable how prolapse could fail to be present To the surprise of all the wound was closed and the iris in place and a round central pupil resulted Certainly without mechanical closure of the wound one would dread the result in the case of such an accident as happened to this patient

VI COURSE OF HEALING

The course of healing after operation with corneal suture does not differ materially from that after other methods of extraction Infection, iridocyclitis and other complications are possible, but it can only be said that in this series they did not occur The stitch does not seem to cause any irritation, that is, there is no complaint as of a foreign body, such as one might expect There is certainly no more redness or secretion than after the operation without corneal suture

It has been said that the stitch would be apt to become infected, but in this series of cases it did not occur Cleanliness in every detail in the operation and early removal of the stitch are the best safeguards against infection or post operative reaction The freedom from cortical debris, more easily secured by this method than by others, in my experience, favors a quick and uneventful convalescence In cases in which this is true, secondary cataract is of course not frequent, and equally as a matter of course, this follows, no matter what method of extraction is employed

VII RESULTS

In speaking of results, the visual result need not be considered since no one would expect that better visual results will follow a successful extraction by one method than those obtained by another Nor does it seem to be the rule that better visual results follow the simple extraction than those obtained by the combined method The surgical results are very good in operations in which the corneal suture is used, better I think, in a large number of cases than by other methods There is a speedier convalescence the pupil is clearer and there is therefore less tendency to secondary cataract, the early closing of the wound permits the patient to get out of bed sooner and have the eye not operated on left uncovered, and the early closure of the wound is also a safeguard, although but relative, against infection

Every workman has pride in the results of his work, and from the cosmetic point of view the simple extraction is a more satisfactory thing to him than the combined The patient, however, is seeking vision, not cosmetic results and any method to stand the test must be the one to give the largest percentage of functionating eyes in a large number of cases Unless it fulfils this requirement, it is of no moment to exhibit a few *de luxe* results

REPORT OF CASES

CASES 1 and 2—F M (colored) aged 65 Cataract in both eyes March 15 1911 Right eye Simple extraction Corneal stitch March 16 1911 Wound closed March 18, 1911 Stitch removed Left eye March 30 1911 Simple extraction Corneal stitch Incision On removal of speculum patient squeezed lids, closed the eye and flap was turned over Lid elevator lens removed and stitch tied Toilet of wound was then performed getting the iris back and a clear black round pupil April 1, 1911 Stitch removed Both eyes show round clear pupils Atropin

CASE 3—Mrs M F H, aged 66 March 13 1911 Right eye Simple extraction Corneal stitch Irrigated March 14 1911 Wound closed March 15 1911 Stitch removed Atropin March 28, 1911 Vision 20/70 with correction April 13 1911 Needled July 5 1911 Vision 20/40

CASE 4—W M W, aged 57 April 25 1911 Simple extraction Corneal stitch April 27, 1911 Wound closed Atropin April 28, 1911 Stitch removed April 29, 1911 Wound reopened anterior chamber empty April 30, 1911 Same May 7 1911 Wound closed, very little redness Pupil central and slightly irregular Atropin Left hospital Left eye May 24, 1911 Vision 20/30 Nov 5, 1911 Vision 20/20 *Central movable pupil*

CASE 5—B B, aged 51 Left eye Always squinted and the vision was very poor Mature black cataract Convergent squint Right eye Immature cataract Vision 2/200 Good reflex around a central opacity General condition not very good Urine contains pus and staphylococci Blood pressure 155 Dec 8 1911 *Simple extraction with corneal stitch* *Irrigated* Dec 9 1911 Wound closed Atropin Dec 10 1911 Stitch removed No cortical matter in pupil Jan 16 1912 Vision 20/40 and J III with glasses

CASE 6—Mrs J R W aged 53 Right eye Dec 9 1911 Corneal stitch Simple extraction Dec 10 1911 Wound closed Dec 11 1911 Stitch removed *Pupil round clear* and central

CASE 7—Mrs. W S N aged 60 June 3 1911 8 30 a m Urine contains albumin Right eye Simple extraction Corneal stitch Suction 4 30 p m Wound closed Epigastric pain 8 30 p m Patient got out of bed and had a convulsion lost consciousness and was not conscious for rest of the night June 4, 1911 Wound closed Eye normal Atropin June 5 1911 Stitch removed July 5 1911 Vision 20/[illegible] with glasses Central movable pupil

CASES 8 and 9—J J (colored) aged 60 Left eye Simple extraction Corneal stitch Suction June [illegible], 1911 Wound closed Atropin July 2, 1911 Stitch removed. Right ey

July 3, 1911 Simple extraction Corneal stitch July 5, 1911 Stitch removed Both eyes show round, clear, central pupils

CASE 10—J R (colored), aged 20 Right eye Trauma twelve days old Considerable inflammation Lens dislocated, 1/5 width of pupil, internally shows fundus reflex Operation under ether on June 27, 1911 Corneal stitch Incision, loss of vitreous and in removing speculum stitch torn out of cornea Lens extraction with loop Iridectomy June 29, 1911 Wound closed

CASE 11—B R (colored), aged 70 Left eye June 9, 1911 Corneal stitch Simple extraction Hypermature cataract Suction June 11, 1911 Stitch removed Pupil round Atropin July 7, 1911 Vision 20/70 with correction

CASE 12—L Y (colored), aged 50 Oct 27, 1911 Iris tremulous Cataract Corneal stitch Squeezed lids, removed speculum and used lid elevator Incision Simple extraction Lens in capsule, bead of vitreous presented and was pushed back by tying stitch Toilet Oct 28, 1911 Wound closed Oct 29, 1911 Stitch removed Pupil somewhat displaced upward

CASES 13 and 14—A M (colored) Right eye October, 1910 Simple extraction Corneal stitch Slight adhesion of iris to capsule up Good result Left eye Oct 23, 1911 Corneal stitch Simple extraction Squeezed but stitch tied immediately Toilet Oct 26, 1911 Stitch removed Pupil round and black

CASE 15—J C, aged 32 Right eye Nov 22, 1911 Tremulous iris Corneal stitch was attempted but needle broke in passing through cornea Incision Capsulotomy Lens fluid and milky Suction Nov 23, 1911 Wound not closed With closed lids the right eye looks like an empty socket Much smaller than the left eye Nov 25, 1911 Wound closed Ball full External appearances normal

CASE 16—J H (colored) aged 60 Left eye Jan 25 1912 Corneal stitch Suction after simple extraction Jan 26 1912 Anterior chamber reformed Atropin Jan 27, 1912 Stitch removed Jan 30, 1912 Small prolapse of iris into wound at site of corneal stitch Whole coloboma and pupil occluded by mass of cortical Patient says he struck his eye night before Feb 12 1912 Vision 20/40

CASE 17—S R, aged 22 Right eye Dec 31 1910 Corneal stitch Simple extraction Lens soft Suction Jan 1, 1911 Wound closed Jan 2, 1911 Stitch removed Sept 16 1911 Vitreous opacities Pupil round and central Vision 5/200

CASE 18—B W, aged 76 Right eye Feb 10 1911 Corneal stitch Simple extraction Irrigation Feb 11, 1911 Prolapse of iris to temporal side of stitch Patient had been very restless Excised prolapse That afternoon wound closed Feb 12 1911 Stitch removed Wound clear of iris Narrow coloboma up and out. Pillars free

CASE 19—J W B, aged 73 Left eye Jan 3, 1911 Corneal stitch Simple extraction Irrigation No trouble Jan 4 1911 Iris prolapse in Replaced but came out, so excised Patient is restless, sneezes frequently and sits up Jan 5 1911 Stitch removed March 11, 1911 Vision 20/25 with glasses Narrow oblique coloboma Pillars free

CASE 20—L H (colored), aged 46 Right eye Feb 1, 1911 Corneal stitch Simple extraction Feb 3, 1911 Stitch removed Good result

CASE 21—J W P, aged 60 Right eye May 31, 1911 Corneal stitch Simple extraction Suction June 1, 1911 Prolapse iris up and in Excised Smoothed pillars back June 2, 1911 Stitch removed June 23, 1911 Vision 20/30 with glasses Narrow oblique coloboma Pillars free

CASE 22—N G (colored), aged 70 Right eye Jan 29, 1912 Corneal stitch Eyes deep set Unruly patient and moved at time of finishing incision Stitch cut at emergence from cornea Iridectomy Capsule forceps and delivery of lens Jan 30, 1912 Wound closed

CASE 23—J H (colored), aged 70 Right eye Feb 10, 1912 Corneal stitch Simple extraction Suction Feb 11, 1912 Wound closed Feb 12, 1912 Stitch removed March 1 1912 Good surgical result.

CASE 24—P P (colored), aged 65 Left eye Feb 13, 1912 Corneal stitch Simple extraction Feb 14, 1912 Wound closed Feb 15, 1912 Stitch out A perfect result March 13, 1912 Capsulotomy March 15, 1912 Vision 20/60

CASE 25—Miss S Right eye Immature cataract Extraction with corneal stitch Feb 29, 1912 Irrigation March 1, 1912 Wound closed March 2, 1912 Stitch removed. No cortical in pupil Minimum reaction March 10, 1912 Perfect result

CASE 26—J B, aged 70 Jan 13, 1912 Simple extraction with corneal stitch Irrigated Jan 15, 1912 Stitch removed Feb 6, 1912 Round central pupil Vision 20/20 with glasses

CASE 27—W H L, aged 62 March 11, 1912 Simple extraction with corneal stitch Rupture of suspensory ligament and escape of vitreous before delivery of lens Lens removed with loop Stitch tied, controlling vitreous March 13, 1912 Stitch removed March 14, 1912 A small vitreous bead in wound March 15, 1912 The vitreous bead has receded Wound smooth

CASE 28—J H, aged 50 Traumatic luxation of lens into anterior chamber of eighteen months' duration Painful one month Oct 16, 1911 Extraction under ether, with corneal stitch Vitreous prolapse on completion of incision Stitch cut by knife, but reinserted Lens removed with loop Tying stitch reduced vitreous prolapse Iris folded upward and could not be smoothed out Oct 17, 1911 Wound closed Oct 18, 1911 Stitch removed Good result, pupil displaced upward, as if an iridectomy had been done

CASES 29 30, 31 and 32—Hospital patients whose records were lost They were all successful simple extractions from a surgical point of view

Exchange Building

ABSTRACT OF DISCUSSION

DR MARK D STEVENSON, Akron, Ohio I have had experience with this method of suturing in only five cases Large sections of the cornea at the corneoscleral margin, if possible, are desirable in order to have easy delivery of the lens or of large cortical masses with the slightest possible amount of pressure, manipulation or bruising of the tissues The earliest possible closure is always to be desired A free, unhealed cut may give opportunity for infection, prolapse of vitreous or iris slow filling of the anterior chamber with sunken cornea and delayed healing with possible chance for the lid to catch into the wound

I have not employed the suture in the exact fashion described by Kalt with a vertical corneal and horizontal scleral anchorage but have made both suture canals horizontal, parallel and about 2 mm apart This gives plenty of leeway for the section which I try to make nearest the corneal suture so that a slight lip of conjunctiva especially to the side if the section is completed to one side in an oblique meridian may lie over the section With the T shaped suture canals of Kalt the threads will form a roughly triangular shape when tied, two separate threads a little apart crossing the corneal section When the suture canals are parallel these threads will form a quadrangle the vertical parts crossing the section parallel and the same distance apart as the suture canals are in length A suture canal will hold much more when the thread pulls sidewise than when it pulls on its necessarily most superficial ends, as it does in the Kalt vertical section I do not see the need of very tight suturing The thread is delicate and might break, of course a loose suture would be of little or no benefit but a snug suture even with my canals 2 mm apart, pulls the episcleral tissue down toward the cornea and makes the opening of the cornea practically impossible while the suture holds The cut edges of the wound are pulled against each other with no tendency to overlapping I have not found it difficult to insert or to remove the suture and have carried out Dr Ellett's advice about not acquainting the patient with its presence until at the time of or after its removal Especially in old patients, it is often important to have them sitting up as early as possible They secure better and more comfortable evacuations of the bladder and bowels, are less nervous and not so depressed and apprehensive as when kept quiet in bed for some time after the operation, which latter I think every cataract patient without a suture or a good conjunctival flap should be

Dr C H Williams, Boston It was my good fortune in years gone by to assist my father, H W Williams, in a number of cataract operations *in which he used the suture* in the cornea He preferred the corneal section known as the Le Brun section, which was made entirely in the cornea, upward, the apex of the cut being just above the edge of the moderately dilated pupil, giving a large corneal wound The suture was placed at the apex of the cut The success of the operation depended very largely on the needle used The needle was flat with an extremely sharp point and a cutting edge one fourth of the length of the needle, as sharp as a cataract knife The needle was ¼ inch long and an ordinary forceps with straight points about ⅛ inch wide, strong and roughened on the surface, was used for the needle holder There was no catch and no jump when the forceps released the needle The suture was a single strand of the finest sewing silk The ideal position of the suture was to pass the needle through the apex of the lower corneal flap going in through the corneal epithelium a little more than 1 mm from the edge of the cut surface and bringing it out on the cut surface before reaching the membrane of Descemet The needle was again entered in the upper flap just outside the membrane of Descemet and brought out on the corneal surface, and the ends tied The suture caused very little irritation It was removed generally on the third day and kept the edges of the corneal wound in apposition until the process of healing had glued them together The wound being entirely in the cornea, and not near the plane of the iris, there was very little trouble from iris prolapse He generally avoided attempts to remove the last particles of cortical substance The results he got were generally very satisfactory We have with us to day Dr Post whose father had an extraction of this sort done on both eyes years ago and he can tell you something of the operation, the healing and the question of irritation from the stitch The first cases reported were in 1867 when there was no cocain anesthesia. A number of operations were done under ether, but a number were also done without any anesthetic The insertion of this suture was not easy It required very delicate handling, and for that reason was never generally adopted I do not remember my father's using the conjunctival suture I do not think he used the corneal suture in the later years of his life, but he did use it during most of his active practice When the operation of extraction with iridectomy was the generally adopted method he preferred to keep on with the simple extraction, which, under his hands, had given such good results I afterward used the conjunctival suture

Dr M H Post, St Louis Historically I think the operation referred to on my father occurred in 1864 The operation was done without an anesthetic and with no iridectomy, and was done at different times on both eyes The result was ideal, with perfectly mobile pupils and with vision normal The operation was done when he was about 55 years old He lived to be 76 years old After the operations which had to be done in connection with the first operation, a needling, the eyes were never subjected to anything but the fitting of glasses, and up to the time of his death he read with perfect ease, comfort, and with very great accuracy At the time of the operation he was confined to bed and as I recollect, his hands were confined He said the pain of the operation was nothing compared with the pain of confinement to his back with his hands tied down

Dr. William H Bates New York I read of this suture in the publications of Dr Williams and Dr Kalt and it looked very promising to me So I went to Dr Prudden of the College of Physicians and Surgeons and in his pathologic laboratory did some experimental work for five years on the rabbit It is very difficult to remove the lens from a rabbit In the first place the cornea is about one eighth of the thickness of the human cornea The lens of the rabbit is very much larger than that of the human eye the anterior chamber is deep and the operation is altogether very difficult, and during the healing afterward ordinarily one obtains a tremendous amount of reaction and a very dense secondary cataract

I found very soon that I would need more than one suture, generally five or six or sometimes more but I was able to produce a water tight closure of the wound and then by restoring the anterior chamber with normal salt solution in favorable cases I was able to obtain at the time of operation a clear round dilated pupil and the healing followed without the formation of much if any secondary cataract In some of my rabbits examined under the microscope there was no secondary cataract After this work it seemed to me that if this suture was so necessary and yielded such wonderful results in the rabbit in the human eye it would be equally advantageous and I read a paper before the Ophthalmologic Section of the Academy of Medicine recommending that this suture be used as was advised by Kalt and Dr Williams before him I had a talk with Dr Herman Knapp and he told me that Schweiger had tried it in some thirty cases a report of which was published in the *Archives of Ophthalmology* but he had abandoned it He said Why would you use it in the human eye when we get such good results with the old fashioned operation and *the suture does not offer any advantages? It complicates* the operation"

I tried it on the human eye and I must confess that I have abandoned its use and believe that it is generally unnecessary

Dr E C Ellett Memphis Tenn I purposely omitted any reference to the conjunctival suture as I did not think that exactly bore on this matter In one of the two papers of Dr Williams' father I am positive he says, I have lately been in the habit of extending this incision to include a conjunctival flap, and place the suture in its apex" But of course, how much that was his practice or for how long he employed it I have no way of knowing I would like to acknowledge my indebtedness to Dr Bates' paper to which he has referred for a good deal of the information as to what had been done on this subject If I remember rightly Dr Bates was under the impression that this in and out suture would not answer because instead of producing apposi*tion of the edges of the wound it would turn them in and* he advocated a through and through suture but that probably was due to the difference in the thickness of the rabbit's and the human cornea and the thinner cornea might readily be turned in that way but I do not think that is apt to occur with the human cornea

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PREPARATORY CAPSULOTOMY IN EXTRACTION OF IMMATURE SENILE CATARACT

PERCY FRIDENBERG M D

NEW YORK

Except to those who are prepared to extract any and every cataractous *lens in its capsule the retention of* gelatinous cortex and the presence of portions of the anterior capsule blocking the pupillary area are matters of serious concern, and any procedure which will cause that loosening or complete *separation of the capsule* from the underlying capsule which accompanies clinical maturity must be greeted as a marked benefit and advance in method The ripening operations which were in vogue some year ago do n[illegible] n to have remained in favor [illegible] the l[illegible] it is true, by ome[illegible] tomy is performed [illegible] very decided [illegible] mechanically effe[illegible] consisted in injecting fluid directly under the lens capsule and was, obviously, too dangerous to gain popularity None of the other methods was reliable and all were slow, if effectual at all In June, 1911, my attention was attracted by Dr Homer Smith's essay, to which the Lucien Howe prize had been awarded, in which capsulotomy was advocated as a means of rapidly maturing senile cataract and facilitating its immediate extraction I was not able to test this procedure for some time, but my first experience was so favorable that I determined to apply it more frequently

It has seemed to me worth while to give a brief survey of earlier publications on this and similar procedures and to have an exchange of views on the merits of this method and on the results obtained by various operators I am convinced that it is of the greatest value and, although my experience is very limited, the procedure seems to me to solve an operative problem which is not without its social and economic bearings

Von Graefe and Mannhardt[1] advised puncture of the anterior capsule three to ten days before extraction in immature cataracts, for the purpose of causing complete opacification of the still transparent clear cortical masses in unripe cataract This operation was reintroduced by Correnti,[2] in 1872, in a paper which speaks of the procedure as "opening of the anterior capsule preparatory to the extraction of cataract"

"Primary capsule rupture" is the name by which Drake-Brockman[3] designated this method of operation in a series of case reports

The initial step of the operation is a division of the lens capsule by a stop-needle, the pupil having been previously fully dilated by atropin This plan he adopted at first in the case of Morgagnian cataracts in order to gain a more exact knowledge of the size of the nucleus, and accordingly to limit the section through the cornea The risks attending the removal of cataract are hereby greatly lessened and the escape of the cataract is facilitated Drake-Brockman subsequently applied this method of operative procedure to all kinds of cataract and found that the results justified a continuance in the operation He says "In no other kind of operation can either so large a surface of the lens capsule be exposed for division by the cystotome, or the iris be kept away from the lens and be rendered less liable to an injury in the division of the capsule" As soon as the nucleus in a Morgagnian cataract has escaped into the anterior chamber, it can be more readily examined as to its size, and the corneal incision can more accurately be made to permit of the escape of that body The advantages of this plan are

1 It allows a more extensive laceration of the capsule at the same time that the anterior chamber remains replete with its fluid

2 It permits of a more complete exposure, and a more thorough knowledge is gained of the size and character of the cataract

3 It diminishes the tendency on the part of the iris to contract, even after the corneal section has been completed and by this means facilitates the escape of the lens

4 By it, the possibility is gained of more accurately judging of the extent to which the cornea must be divided to permit of the escape of the lens

5 The less necessity there is for the introduction of a traction instrument to effect the removal of the lens, the less interference there is with the natural position of the structures of the eyeball

Of 674 operations, seventy-nine, or 11 72 per cent, were unsuccessful Of this number, 101 were for Morgagnian cataracts The iris was excised in only seventy-five total cases Chloroform was administered in 654 cases, and the iris prolapsed in sixty-four, or 9 16 per cent, the latter accident being due, in several cases, to vomiting caused by the anesthetic Glaucomatous change occurred on six occasions, but this could not be attributed directly to the operation In further endeavoring to render the operation still more simple, Drake-Brockman laid aside the needle and in thirty-four cases effected the capsule division by means of the cataract knife "before completing the transfixion of the corneal tissue," i e, while making the section Of this number, six proved unsuccessful In the endeavor to divide the capsule of the lens fully, the iris is more liable to be injured and the lens structure cut into and broken up, so that iritis occurred in greater frequency As no corresponding advantages were to be gained by this treatment of the lens capsule, it was abandoned in favor of the original procedure of division by the needle, prior to making the corneal section

In a second communication,[4] four years later, the same author reports 1,433 additional cases operated on during the previous three or four years Of these, but 5 58 per cent were failures, a very great improvement over the first series These results (7 54 per cent failures), Drake-Brockman claims, contrast favorably with any other method of operation The procedure was applied to all forms of senile cataract, and in some cases of cortical cataracts, with entirely satisfactory results The original crucial incision of the capsule was abandoned in the second series, Drake-Brockman having adopted, instead, a linear division along the upper papillary margin This more simple procedure was found equally effectual Rohmer[5] practiced extensive discission of the anterior capsule and paracentesis of the anterior chamber, followed by massage, through the upper lid, for several seconds The opacity was almost complete in from twenty-four to thirty-six hours, and entirely so within three or four days Extraction was then performed "in a day or two"

Elschnig[6] gave up the discission needle, as it made an easily infected wound and was not well adapted to incising the lens masses, and used a Graefe knife, which was carried in laterally in the horizontal meridian from 1 mm outside the limbus Elschnig disapproves of discission for ripening senile cataracts, as all cataracts in individuals above 50, whether mature or not, can be extracted easily, no matter what the condition and proportions of nucleus and cortex In old patients, Elschnig extracts as soon as the vision has diminished so that the day's work cannot be done

Mooren[7] used a narrow Graefe knife to split the capsule in immature cataracts, especially in zonular forms

Jackson,[8] in discussing the technic of discission for maturation, lays stress on the importance of making a small central opening and allowing the aqueous to drain off, allowing the lens to be ploughed up with a comparatively small incision, as the consequent reaction is proportional to the amount of soft lens-matter which exudes through the cut capsule into the anterior chamber.

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[1] Von Graefe and Mannhardt Klin. Monatsbl f Augenh 1864 p 408

[2] Correnti Imparziale Fasc. 11 12

[3] Drake Brockman Ophth. Rev 1884 iii, 243

[4] Drake-Brockman Ophth. Rev 1888 vii 333.

[5] Rohmer Cong d ophth de Paris, 1887 Ann. d Ocul xcvii p 241

[6] Elschnig Wien. klin Wchnschr, 1896 No 53

[7] Mooren Operative Behandlung d natürlich u. künstlich gereiften Staar Formen Wiesbaden 1891

[8] Jackson, Edward Am Jour Ophth 1898, xv 9

Alessandro[9] advises multiple punctures of the anterior capsule. The discission needle is carried in at the outer quadrant of the cornea and five to ten punctures made. Maturation takes place "in a week or two."

Fage[10] makes a small incision into the anterior capsule *in the pupillary* area, allows the aqueous to drain off, and then massages through the cornea. Maturation is complete, on an average, in three weeks. Iridectomy is not necessary. Tynen of Austin, Tex., in 1900, reported under the title of "preliminary capsulotomy," a procedure of primary opening of the capsule at the time of operation, using Bowman's stop needle prior to the corneal section. Tynen believed this to be original with himself, it having been suggested by a case in which there had been prolapse of fluid vitreous and the lens had sunk into the posterior chamber (sic), requiring extraction with iris forceps. When it came to operating on the other eye, Tynen, fearing a similar complication, performed "preliminary" *capsulotomy just before* making the corneal section and was gratified by rapid and easy, almost spontaneous delivery of the lens, although here, too, a small amount of fluid vitreous escaped. The procedure was then applied methodically, and Tynen refers to thirteen cases. In all but two the healing was uncomplicated, and the final results excellent. The two exceptions were cases in which *marked* iritis developed, due as Tynen thinks, to the use of too strong solution of atropin, "crowding the iris up into the neighborhood of the corneal wound." The leading point in the operation, according to this writer, is in making the capsulotomy the primary step, thereby enabling the operator *to deliver the lens the very moment the corneal section is completed*. When this section is finished, pressure with the flat of the blade causes the corneal opening to gape, when at the same moment counter-pressure with the fixing forceps below aids the expulsion, and the lens slides out through the still open pupil with surprising ease. "The lens, having no other avenue of escape, almost always *indicates a tendency* to follow the knife as the corneal incision is progressing, and when it is finished the lens is partly in the anterior chamber." Tynen adds that in cases in which the lens is to be dislocated this can be done most easily in performing his "preliminary" capsulotomy, and that the *operation* then resembles Delgado's. The incision is made in the upper quadrant of the dilated pupil following the curved pupillary margin of the iris. Both the point of the instrument and the field of operation are in full view.[11]

At the 1906 meeting of the American Academy of Ophthalmology, Homer E. Smith, of Norwich, N. Y., reported a method which had as its *object "to know in* advance the size of the section required, and to make certain an efficient capsulotomy with a maximum of precision and a minimum of risk." The method, he says, is applicable only to such cases as one would select for the simple extraction, and is not the operation of choice when the iris lacks the lustrous appearance of health when the lens is amber-colored or dark-gray, and when the iris is rigid, with little dilating ability to the pupil. The chief objections to the simple operation, which, according to Smith is indicated in 95 per cent of the cases, namely, the difficulties of an efficient capsulotomy, of effective removal of fragments of cortex, and of easy *delivery* of *the lens through the pupil*, are met by the method proposed. As to the better visual and cosmetic results, he adds, there can be little question. He then describes a primary capsulotomy with a small Knapp's knife-needle making a crucial incision, "not only through the lens capsule, but partly into the lens-substance itself. If the cut in the capsule is practically invisible, a large nucleus is present, and the usual section of the upper two-fifths of the cornea will be required for the easy exit of the lens. If semi-gelatinous lens-matter escapes, a section of one-third will suffice, while if a milky liquid issues, the cataract is hypermature and the section may be made with the angular keratome. A period of waiting between the capsulotomy and extraction is required for the anterior chamber to reform completely as there is usually sufficient loss of aqueous to render the eye soft and unsuitable for good section. This loss of time is really a gain in results, for even in four hours there is sufficient imbibition of aqueous to facilitate the separation between cortex and capsule and to make easier the delivery of the lens."

It will be noted that this is the first reference to an artificial maturation of the cataract by means of preliminary or rather primary capsulotomy, the other writers, as, in fact, Smith himself, having laid stress only on the more perfect capsulotomy thus made possible and on the information gained as to the consistency and, indirectly, the proportions of the lens as to the relative amount of nucleus and cortex. The advantages of this form of capsulotomy are presented by a better cutting instrument than the cystotome, the freedom of the section *into the capsule from* danger of entangling or wounding the iris, and the avoidance of dislocating the lens, as may easily be done when the cystotome is carried far toward the equator. These benefits are inherent in a method which finishes the opening of the capsule without emptying the anterior chamber or allowing the pupil to contract, rupturing the zonule or causing loss of vitreous. It will be noted that stress is laid on the superiority of this procedure as a *means of opening* the capsule and indirectly of removing cortical debris after extraction.

Recent advances in methods of dealing with the capsule, notably the procedure of tearing out a portion of the central area of the capsule with forceps, such as those devised by Fuchs and by Schweigger and improved by Knapp, have made this less important if not entirely unnecessary. Short of an extraction in the intact capsule there is no method which leaves so clear a pupil as that of capsulectomy. The crucial incision with the knife or stop-needle, interferes with this procedure or renders it impracticable, as the tension of the capsule is reduced so that the forceps will not grasp or, at all events, if it does so, no central portion can be excised *or torn off*, the ends curling up at the crossing of vertical and horizontal incisions. The benefits of the complete removal of the capsule may, however, be gained without forfeiting preliminary capsulotomy if we make a peripheral semicircular incision as practiced by Dr. [illegible] Brockman and originally advocated by Tynen, or make a number of straight, fairly peripheral cuts either horizontal at upper and lower pupillar margins or vertical at the temporal and [illegible] of the

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[9] Alessandro Arch d Ottalmol 1901 vii p. 201
[10] Fage Ann d'Ocul., [illegible], cxxix 4[illegible]
[11] New York Med. Jour., Sept [illegible] 1900.

In a recent publication[12] Smith reviews this procedure, and now for the first time calls attention to its value as a rapid and safe method of causing operative maturity of senile cataract, by causing separation of the cortex from the posterior as well as anterior capsule, by entrance of aqueous under the capsule through the knife-needle incisions, this process being completed over night Smith first made this observation by accident, the anterior chamber having been abolished while he was performing discission of the capsule in a case of immature cataract, and being obliged to defer extraction till the following day, he was agreeably surprised to find that the previously clear cortex had become opaque over night, and was able to deliver an operatively mature lens with little or no cortex, leaving a clear, black pupil, and gaining, eventually, 20/30 vision The original idea of a more effective, complete, and safe capsulotomy, avoiding the dangers of the usual cystotome opening, was now replaced by the hope of causing a rapid maturation of cataract allowing extraction with a minimum of remnant cortex, with the incidental advantage of a more easily delivered lens, little or no necessity for prolonged anterior chamber irrigation or mechanical expression for removal of retained cortical debris, and a posterior capsule left free from adherent lens-matter Smith's first experience showed him that the knife-needle could be improved on The blade was too long and not cutting sharp up to the point He had constructed a "miniature scalpel" with a cutting blade 2 mm long and a slender shank just thick enough to stop the corneal puncture Smith has not departed from his original crucial incision which is not allowed to penetrate deeply into the lens-substance For this reason the shank is gradually withdrawn as the knife is carried along in making the incisions "Were it not for this maneuver the blade would sink dangerously deep into the lens or possibly dislocate it" The only disadvantage of this preliminary capsulotomy, according to Smith, is that it requires more time and trouble as the technic of asepsis must twice be gone over

We cannot however, dismiss all objections in a single sentence unless we close our eyes to the fact that it is the danger of infection, even more than the time and trouble of disinfection in a second operation, to which we hesitate to expose our patient and which we would not risk unless there is something definite to be gained The disadvantages of the ordinary capsulotomy are many, but the main point to be considered in weighing the pros and cons of the new procedure is the question whether we can expect decidedly better visual results and comparatively early operation in immature cataracts with little or no additional risk The disadvantages of capsulotomy with mature lenses have become negligible quantities since the perfection of the capsulectomy method The crucial incision rather complicates this and may have to be superseded by the peripheral curved or straight incisions in the capsule which still allow a central portion to be torn out with the forceps The *main advantage of preliminary capsulotomy* is the rapid maturation, operatively speaking, of an immature but partly opaque lens by changing of sticky cortex into a homogeneous substance which no longer adheres to the capsule and either comes away with the nucleus or can easily be flushed out of the anterior chamber As Smith well says "It makes an immature cataract operable at once and saves the patient much weary waiting and loss of usefulness" The procedure is safe, efficient, and easy of execution *It is adapted to all types of cortical cataracts*, but it is particularly of value in the immature variety It makes the capsulotomy the easiest step in the extraction operation and greatly facilitates the delivery of the lens Finally, delivery is accomplished with little or no pressure, so that there is less danger of complicating prolapse or loss of vitreous, and a secondary operation is rarely necessary This last point alone, if borne out by observations and experience of other surgeons, would be sufficient, in my opinion, to constitute this procedure a valuable and important innovation For the danger of the preliminary capsulotomy would be balanced and wiped out by the fact that the extraction is the last operation Comparing the two, one would infer, theoretically, that there was less risk in needling the capsule of an immature cataract than in performing discission of a secondary membrane, and this appears to be borne out by statistics and the consensus of opinion among eye surgeons

Does the adoption of this procedure mean the passing of the immature cataract? If so, it is indeed a boon for patient and surgeon The operations heretofore performed for maturing a partially opaque lens have been dangerous, ineffectual or unreliable, and all have required, at the shortest, three or four weeks to produce the required effect Iridectomy, either simple or combined with massage of the lens, through the cornea or directly with the spatula introduced at the time of the iridectomy into the anterior chamber, have been tried and found of doubtful advantage[13] The dangers have been emphasized, particularly by Major Smith,[14] who says

> Puncturing the lens capsule with a needle is liable to be a complete failure or to establish a traumatic cataract, which, thus established, may constitute a serious ophthalmic emergency The formation may be so rapid and the lens may swell up to such a degree as to cause acute glaucoma and the lens matter may escape into the aqueous chamber and cause acute iritis or iridocyclitis The extraction of such a cataract admits of no delay The conditions under which it has to be extracted are highly unfavorable and difficult, and the results are far from being as satisfactory as in the extraction of a cataract matured by Nature's process It will thus be seen that when this procedure is efficient in maturing a cataractous lens that is, when it causes a traumatic cataract, it is fraught with serious trouble and serious danger and is now, I think, relegated to the operations of the past

Far from being relegated to the operations of the past, opening the lens capsule for the purpose of maturing cataract bids fair to be one of the type procedures of the future The objections raised by Major Smith apply to the needling as formerly practiced, and involve the instrument and the lapse of time between the discission and the intended extraction In the preliminary capsulotomy of Homer Smith of Norwich, a suitable cutting instrument is used and so little time elapses between its introduction into the eye and the extraction of the cataract that no danger need be feared High tension might, it is true, develop over night, but the extraction would nip this process in the bud Iritis could hardly develop if the pupil had been kept dilated, or at least would be in the stage of incipiency and hence easily controlled The escape of lens-matter into the anterior chamber could hardly cause much trouble in the short time elapsing before the lens is completely removed

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[12] Smith New York State Jour Med May 1911 Arch Ophth January 1912

[13] Widmark J Review of Methods Centralbl f. Prakt Augenheilk. March 1897 The authors agree that massage methods (Foerster Bettmann) are generally effective only when there is a fairly large resistant opaque nucleus to serve as a base (Unterlage) In other cases capsulotomy is the better procedure The latter procedure was reserved for patients under 40 and never used for the mature senile cataract proper

[14] Tr Am. Ophth Soc 1908 xi, 605

My personal experience with Smith's method of preliminary, or, as I should prefer to style it, preparatory capsulotomy, is very limited, but so far at least, the results in my own cases as well as in those of my colleagues at the New York Eye and Ear Infirmary, who have given this procedure a trial, have been uniformly excellent Some loss of aqueous or even complete draining off of this fluid sufficient to abolish the anterior chamber for a time does not seem to have any deleterious effect, and reminds us that the procedure of repeated paracentesis of the cornea and evacuation of the anterior chamber after discission was recommended as long ago as 1845, by Werneck,[15] in cases of soft cataract in which maturation was unduly slow Aside from the ease and accuracy with which the corneal section and the cystotomy can be performed with and after the *preliminary capsulotomy*, respectively, stress should be laid on economic advantage to the patient of shortening the period of partial blindness and of incapacitation This applies particularly to comparatively young cataract patients with lenticular opacities of sufficient density to materially interfere with their occupation, a condition found rather frequently in men of from 45 to 50 who work in front of fires, such as glass-blowers, foundrymen, engine drivers and stokers, workers in potteries, brick kilns, and so on It seems to me that the advantages of the preparatory capsulotomy might be combined with those of excision of the capsule by a slight modification of the knife-needle incisions If these are made at the periphery, above and below, or at the temporal and nasal margin of the dilated pupil, respectively, we produce the same ripening effect as with a crucial incision through the capsule, with the further advantage of not making it difficult or impossible to tear out a piece from the center of the anterior capsule The latter maneuver undoubtedly facilitates irrigation of the anterior chamber and intracapsular washing as well and makes it possible to remove mechanically a maximum of cortex with a minimum of traumatism and consequent irritation The purely optical effect of complete removal of capsule from the pupillary area must be considered as of decidedly beneficial influence on ultimate visual results

60 East Fifty Eighth Street.

ABSTRACT OF DISCUSSION

DR HOMER E SMITH, Norwich, N Y Dr Fridenberg makes two parallel incisions in the capsule and afterward uses the capsulotomy forceps, and the capsule will retract along the line of the incisions and prevent the entrance of the *aqueous* between the capsule and the cortex which hastens the maturation of the lens Therefore he will have a sticky cortex

Every step in the extraction of cataract has undergone an evolutionary process but while the section is practically agreed on the capsulotomy is not and this is, perhaps, the most important step in the operation If the capsulotome was an efficient instrument its shape would have been agreed on long ago, that it is not is proved by the many forms now in use If the elastic lens capsule be incised it will simply gape, if cross incised it will open, the size of this opening depending on the length of the cross cuts. A capsulectomy therefore insures no larger opening for the exit of the lens and the subsequent clarity of the mediums than does a crucial capsulotomy of equal size in the midpupillary space and, moreover, it is the less scientific surgical procedure as it means tearing and not cutting That it is more difficult and dangerous only emphasizes this A *preparatory capsulotomy* is certain, easy of execution efficient simple, of clean cut margins, leaves no capsule in the pupillary space minimizes the risk of loss of vitreous and other things being equal, is superior to a capsulectomy In addition to this a capsulectomy can be made only after the section and the advantage which one gains by a knowledge of the size of the nucleus and therefrom of the proper size of the section is thereby lost The point to the effect that high tension might develop overnight is well taken Loss of aqueous during the capsulotomy is an embarrassment as it makes difficult what remains to be done of the crucial incision, following the withdrawal of the knife it is of no moment The cut is so small *that the anterior chamber reforms in a few minutes* and with the new knife it rarely happens at all I must differ from Major Smith of Amritsar in the matter of the operative maturation of the partially opaque lens That these operations have been failures is due to the essential structure of the capsule and the mode of operating Small punctures either close or at most produce small islands of opacity just beneath them Small incisions allow none or but little lens matter to escape and if the lens swells it is most probably equatorially and we get occlusion of the filtration angle If the incision is large and there is any swelling it is in the polar diameter

DR HOWARD F HANSELL, Philadelphia I feel that I am not entitled to speak very authoritatively on this operation because I have performed it only five times, but in those five *operations I have been gratified* beyond expectation in four, and I have come to consider that for the immature nuclear cataract, the kind that requires so many months and years of delay for its maturation, this operation can be done within twenty four hours after the capsulotomy with perfect safety and assurance that the cortex of the lens will not be left behind Since reading Dr Smith's paper in the *Archives of Ophthalmology* for January I have thought rather deeply over the operation and a week ago I had the opportunity of doing four of these operations together and the week before one

I was impressed with the fact that in none of these cases did the capsulotomy increase the opacity of the lens in the *twenty four hours* but only its maturation In other words the clear cortex adheres to the nuclear as the lens is removed

DR G C SAVAGE, Nashville Tenn Soon after I received the reprint sent me by Dr Smith feeling impressed by the work he had outlined I proceeded to do it on the left eye of patients and by the way, I always leave the capsule in when I operate on the left eye The ideal capsulotomy has been given us by Homer Smith It is easy to do and he does it right The crucial incision, the two lines crossing in the center, cannot be improved on by parallel lines running in any sort of direction The points at the angle of the crucial *incision* as has already been *demonstrated roll outward, but* the thing that is accomplished by this device of my friend Smith is the ease with which the lens is expelled During many years I have been transfixing the lens as it presents itself whether the capsule is left or taken out so as to do away with continued external pressure on the eye thus lessening the risk of escape of vitreous but the lens is *so loosened* in its capsule when it has had a few hours to be loosened by the aqueous that it comes out before we have time to transfix it like a bean out of its hull It is a delight to see how easy it is by this procedure I do not believe we ought to leave these patients over night Do the capsulotomy at 8 a m and then about 2 p m you have all the loosening of the lens that is desirable and it will come out at the end of six hours with such ease that you will be astonished and I then you can go to bed and sleep, because the pressure has not ruptured the hyaloid membrane and you have had no escape of vitreous I honor my friend Smith for the gift which he has given us, but I am sorry his name is Smith, because it is going to lead to a little confusion Hereafter we shall have to distinguish the two Smiths of cataract fame by calling the one 'Indian Smith" and the other "American Smith" Of the two operations given us by these men, grant me the 'American Smith's" operation

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[15] This procedure of Werneck is recommended by Arlt (Graefe-Saemisch Handbook 1874 III) who attributes its efficacy to mechanical stretching of the already torn or punctured capsule widening and bursting the tears and deepening the fissures in the lens substance due to the lens being forced forward. Resorption takes place more rapidly than possible he adds because the aqueous which had become saturated with lens-fiber matter is emptied out and replaced by fresh fluid of greater absorptive capacity Arlt considers this procedure less dangerous and accordingly more suitable for repeated application than a "formal" discission.

DR. S LEWIS ZIEGLER Philadelphia My attention was first called to this method of incising the capsule preliminary to cataract extraction soon after I presented my paper on V shaped iridotomy and capsulotomy, at the Chicago meeting, in 1908 I received letters from several operators saying that they had used my knife needle to make a preliminary cystotomy, at some period preceding the operation of cataract extraction I tried a few of these operations with the V shaped incision but was not favorably impressed with it and discarded it I think, however, that we should give this procedure a thorough trial, because there are so very many cases in which we must have some method of maturing the lens, and the Foerster operation does not accomplish this satisfactorily

In regard to the term to be applied to this procedure, we are apt to become a little confused because we are using the term 'capsulotomy" in several different ways The operation on secondary membranous cataract is properly called a capsulotomy, and it would seem more appropriate to call this procedure cystotomy, or preliminary cystotomy, because the capsule is still intact and is, therefore a cyst holding the lens In that way we would be able to make a slight differentiation between these operations I think the procedure is worthy of our careful study and practice to see just how much we may develop from it

DR. HENRY DEWITT WATSON, Binghamton, N Y In one case in which I have operated with a capsulotomy preliminary to the extraction performed according to Dr Homer L Smith's method the patient was a woman, 17 years old, who had been in ill health for six or seven years with a diagnosis by several internists of pernicious anemia When she was referred to me last November, she gave a clinical picture of marked anemia with great emaciation Her vision in the right eye was counting fingers readily at about 2 meters, and in the left eye the vision was 20/197 Her vision was sufficiently obscured to annoy her, and therefore to have a depressing influence on her mind The eyes presented nothing out of the ordinary but because of the pronounced immaturity of the lenses and fear of an undesirable reaction I decided to do a preparatory • iridectomy, with preliminary opening of the capsule The right eye was chosen because of the slightly lesser vision Six weeks after the iridectomy the lens was extracted The capsule was opened as described by Smith at about 3 p m, the eye bandaged and the patient placed in bed She had no discomfort, and at 9 o'clock the following morning when the bandage was removed the eye showed very little reaction The two incisions in the capsule were noticeably spread and presented an appearance as if the lens substance were slightly protruding A section was made in the limbus about 2 mm above the horizontal meridian of the cornea and the lens delivered in the ordinary way, but this required only very slight pressure The pupil was clear and black, the toilet was made and the eye bandaged The subsequent course was ordinary In three weeks with an approximate correction the vision was 20/30 Three weeks later, because of some wrinkling and slight opacity of the capsule, I opened according to the method of Ziegler With her correction she now has 20/16 vision

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Clean Milk —The only reason why we do not have clean milk is that it costs more than dirty milk though in the long run the cost of clean milk is less If we could only impress the latter fact on the public the sanitation of our milk supply would go forward rapidly —*Dietetic and Hygienic Gazette*

VISUAL RESULTS AFTER THE SMITH OPERATION FOR CATARACT

D W GREENE, M D AND J W MILLETTE, M D
DAYTON, OHIO

So much has been said and written concerning the merits and demerits of this operation in the last few years that it may be assumed that the profession is generally well informed as to the indications for the operation, the operative technic, the accidents and complications which may follow it, so that little remains to be said along these lines The phase of the operation to which we wish to call attention, aided by statistics, is the excellence of the visual results which can be secured by it in all stages of cataract, as this is not so generally appreciated as it deserves to be

In order to present a summary of our visual results, we shall be obliged to depend on a comparison of statistics, the subject will not admit of treatment in any other way We think it will be fair to the operation, and aid to a better understanding of our purpose, if we exclude from these visual tables cases complicated by unrecognized fundal disease, lacrimal disease and central opacities of the cornea and retention of ruptured capsule, unless it has been extracted, wholly or in part, as a step of the operation

These statistics of unselected cases will show that taking large numbers of operations, all other things being equal, vision will average very much better one to two months after the intracapsular, than after the regular operation, and if the visual results are measured by the same standard, surely we are subjecting it to as severe a test as can be required of any cataract operation

As the profession has a right to ask for the facts and figures on which the above claim of superior vision is based, the following recent visual statistics of the regular operation are offered for comparison

Knapp whose unequaled experience as a cataract operator has made him an authority, has given us the following standard for estimating vision, which by common consent is generally accepted He said

> We should consider vision of 20/200 to 20/20 as constituting a first class result, vision from 18/200 to 1/200 a moderate result and mere perception of light and blindness as failures

In the same connection, he has said

> The average result of primary vision after extraction, simple as well as combined, computed from many hundreds of cases is 20/70, that of ultimate and permanent vision after discission 20/30

No one will question the reliability of the statistics just given of ultimate vision in the skilful hands of Knapp, or operators of his class, but we believe, from a large experience, that this is too high a standard for the average operator The statistics to follow will show that 20/40 is nearer the vision secured

Under the standard just given the following statistics have been compiled by Theobald of Baltimore[1]

RESULTS OF TWO HUNDRED AND FIFTEEN CONSECUTIVE EXTRACTIONS OF CATARACTS

"Combined extraction was done in ninety-four cases, extraction after preliminary iridectomy in seventeen cases, simple extraction (unintentional) in one case, extraction in capsule without iridectomy (unintentional) in two cases, and suction extraction in one case of traumatic cataract"

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[1] Theobald Summary of Results Obtained and Features of Interest in 215 Consecutive Cataract Extractions, Tr Am Ophth Soc, xii 84

Successes (vision 20/200 to 20/20)	178
Successes (vision not recorded)	15
Total successes	193
Partial successes (vision 6/200 to 18/200)	10
Partial successes (vision not recorded)	3
Vision not improved, though operation was smooth	2
Failures from suppuration	4
Failures from other causes	3
Total operations	215

Vitreous was lost in 15 operations, or 7 per cent

The seven failures recorded represent a loss of slightly more than 3 24 per cent

The visual acuity obtained in the successful cases *omitting* the fifteen in which it was not recorded, was as follows

20/13	1	20/50	19	20/120	7
20/15	1	20/60	10	20/125	2
20/20	4	20/70	16	20/150	1
20/25	3	20/75	6	20/?	14
20/30	31	20/80	7		
20/40	25	20/90	6	Total	178
20/45	3	20/100	22		

Duncan[2] has reported the following summary of visual results in 100 extractions of cataracts "eighty-six senile, seven soft, and six congenital"

While it is not stated, we think it is fair to assume that a large percentage of Duncan's statistics apply to mature cataract, and that the usual percentage of discissions were performed to secure the vision reported

After 100 regular operations, he gives the following figures

No Cases	Vision Equaled	No Cases	Vision Equaled	No Cases.	Vision Equaled
32	20/20	14	20/50	1	10/200
25	20/30	4	20/80	4	no report
12	20/40	5	20/200	3	failure

Vision in 96 cases approximately 20/31
Vision in 93 cases approximately 20/30

It will be observed that practically one-third of 100 cases are credited with 20/20 vision This is not in harmony with Knapp's, Theobald's or our own statistics of vision after the regular operation

At the meeting of the Section in Atlantic City in 1909, Greene[3] submitted the visual statistics of seventy-five cases of cataract operated by regular methods, with thirty-five discissions and nine refused discission, with the following showing

No Cases	Vision Equaled	No Cases	Vision Equaled	No Cases.	Vision Equaled
10	20/20	5	20/60	1	fingers at 6 ft
16	20/30	2	20/70	1	percep of light
17	20/40	7	20/100	1	0
10	20/50	5	20/200		
				75	

Average vision equaled 20/40

Those who are favorably disposed to the intracapsular operation are willing, as a test of its merits, that its visual results shall be measured by the Knapp standard for the regular operation, as given above, and will not ask that its statistics of vision be restricted to mature cataracts, as those of the regular operations are as a rule, but that they shall apply to all stages of cataract

Extracting unripe cataracts by regular methods (except when the lens is uniformly sclerosed) is a very unsatisfactory method of dealing with them and, in our experience at least, cannot furnish such visual statistics as have just been given We do not think that there is a confrere present who would care to present a paper to the Section on the visual results he had obtained in 100 consecutive operations by capsulotomy methods even though he had recourse to the latest ripening method (Smith, of Norwich, N Y) It is in the treatment of unripe cataracts, whatever their nature, that intracapsular extraction is especially indicated and achieves its highest successes This is not an *ipse dixit* statement, but is corroborated by the experience of many operators

No large numbers of statistics have yet been compiled, from which those who believe that a higher average of vision can be secured by the intracapsular than by the regular operation can prove their contention, or by which those who wish to compare the visual results of the operation with those of the regular operation can find statistics for the purpose Yet, those to whom experience has shown the higher grade of vision must believe what they have seen

Unfortunately conditions in northwestern India in which large numbers of visual statistics for the intracapsular operation should be compiled, are not favorable for the collection of these statistics, and the unusual presence of trachoma, opacities of the cornea, and the frequent presence of disease of the fundus affect the average of vision

The small number of operations performed outside of India increases the regret that the wealth of material there has not and we think cannot, be made available to any considerable extent for compiling statistics to show the visual superiority of the intracapsular operation

We aim to gather the small numbers of Indian and American statistics for the purpose of comparing these operations in visual results Operations for cataract have but one purpose, namely, the restoration of vision, and if it can be shown that the intracapsular yields a high percentage of successes and higher average of vision, in all stages of cataract, than the regular operation, it will grow in professional favor against all opposition

The complications which follow are comparatively mild and, as a rule, respond more readily to treatment, so that fewer total losses from painful inflammatory conditions follow it than follow the regular operation These reasons and the increased visual acuity, in our judgment, more than offset the complications

In our experience, if the capsule does not rupture, about 90 per cent *of the cases complicated by loss of* vitreous will have about the average and, in many cases, high-grade vision, and the remaining 10 per cent will show as good average vision and no more total losses than after the same accident in the regular operation In some complicated cases, good or useful vision may be secured by proper medical treatment which might be lost without it, or the result be indifferent

These remarks are offered in an explanatory, not in an apologetic spirit, because in the end the operation must stand on its own merits and be judged by some criterion The best criteria are comparative freedom from inflammatory complications and higher average vision, if it cannot furnish these, it will fail to win professional favor

Greene, during his stay of six weeks in Smith's clinic in India, became satisfied that the want of definite knowledge of the amount of vision secured by the operation was the weakest act in the great "Jullundur show" Any one at all familiar with the appearance of cataract eyes would have to concede that a very high percentage should have high-grade vision, but any one familiar with the situation there knows that carefully worked out statistics of visual results, to confirm this statement cannot be secured unless more assistants are provided or unless some way is found to have patients return later for examination and glasses

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[2] Duncan One Hundred Consecutive Cases of Cataract Extraction Arch Oph xxxvii [illegible]

[3] Greene THE JOURNAL A M A Sept 4 1909 p 777

Smith's[4] statistics of 99.27 per cent. of first-class results, Gidney's[5] 91 per cent. and Vail's[6] better than 97 per cent. should be considered surgical successes, not the showing of carefully tested vision, while the results would undoubtedly average high, yet as a rule, they are only estimates made from the appearance of the eye when discharged from the hospital. Greene's 356 Indian operations are of the same class and Smith[7] has said that "all the statistics of the government hospitals in northern India are based on the same plan."

Fortunately, a few Indian operators have furnished statistics of the amount of vision they have secured by actual tests with lenses. These are of value because they throw light on what many consider the greatest weakness of the operation, namely, that no large numbers of statistics of vision have been furnished up to this time.

Lister[8] says:

> It is quite impossible to give a statement of the exact vision obtained by every patient operated on in Indian hospitals in the provinces. At Jullundur, owing to the deficient accommodations, the patients are allowed ordinarily to leave the hospital on the sixth day.
>
> The eye is still weak and cannot tolerate light well enough to allow the vision to be tested at a distance. In Meerut, my patients are discharged on the tenth day, but that also is too early to allow their vision to be tested other than roughly. I show the patients groups of small dots varying in size from one readily seen to one as big as the ordinary full stop in print. They are asked to count these with a + 10 D. lens. If they can count down to the last size but one I am sure from experience, their vision will be about 6/6 when the cornea has settled down. This may not appear very scientific, but it is all one can do, and it is for all practical purposes sufficient. I have had the opportunity of seeing and testing many patients of my own and of Major Smith's who came back for various reasons, and from an experience which is based on certainly not less than 250 of these cases I should say that the average vision obtained after this operation, provided the eye was healthy before operation, is 6/6.

Lister[9] has also reported and commented at length on ninety-eight cases operated by Smith, complicated by loss of vitreous, the average time after operations being 3.706 years, varying from six months to nine years. After excluding cases complicated by opacity of the cornea, capsule left behind and disease of the fundus, he had sixty-one cases which he tested with spherical lenses and reported vision as follows (no attention was given to the correction of astigmatism):

No. Cases	Vision Equaled	No. Cases	Vision Equaled	No. Cases	Vision Equaled
4	6/3	5	6/4.5	2	6/8
6	6/3.5	4	6/5	3	6/9
4	6/4	33	6/6		

Approximately 6/5 vision for all.

Oxley,[10] in 100 unselected cases, reported visual results as follows:

No. Cases	Vision Equaled	No. Cases	Vision Equaled
52	6/6 to 6/8	6	6/20 to 6/30
26	6/10 to 6/15	13	below 6/30

Vision in both reports is probably too low because astigmatism was not corrected.

Gidney[11] refers to 100 cases of double cataracts (200 extractions) made by him, in which one eye was operated on by the intracapsular method and the other by capsulotomy. He did not pick or choose the cases as to their suitability to one or the other operation, except that all immature cataracts were extracted in the capsule, and the capsule was lacerated when there was evidence of increased tension (this was present in six eyes). The following tables speak for themselves, they prove most conclusively that vision is more acute. His results were worked out in Jessop's classification, that is, a "success" when with glasses vision is at least 6/36, "partial success" when vision is less than 6/10, and at least large objects are distinguished, "failure" when there is "perception of light only."

TABLE 1.—RESULTS OBTAINED FROM OPERATION BY THE INTRACAPSULAR METHOD IN 100 CASES OF DOUBLE CATARACTS

Variety of Operation	Nos. Operated On	Visual Results							Below 6/60 and Counting Fingers	Vision Lost
		6/6	6/8	6/12	6/18	6/24	6/36	6/60		
Intracapsular	100	27	13	13	16	15	6	4	5	1
Capsule laceration	100	4	3	11	20	18	19	13	10	*2

* Includes one panophthalmitis due to lacrimal disease.

In America the situation is very different from that in India, here, we think statistics of the quality of vision secured by the operation must be largely compiled. Our patients are more intelligent, they need their eyes for close work, and private patients clamor for the best possible vision, and as a rule have means to remain long enough in the hospital to be treated for complications which may interfere with the attainment of the best possible vision, or they can come back later for examination and glasses.

Tivnen[12] in the discussion, 'Delivery of the Lens," in the symposium on senile cataract before the Chicago Ophthalmologic Society, Nov. 20, 1911, said that he had received 160 replies to the series of questions he sent to a large number of oculists, asking for their experience with, and attitude toward, the Smith operation, 111 (69.3 per cent.) had not performed the operation. In answer to his third question, "Has the Smith operation in your experience secured either an increase or a more satisfactory visual acuity than the capsulotomy method?" forty-nine replied that they had performed the operation, fifteen (30.6 per cent.) reported an increase and more satisfactory vision by the Smith method, eleven (22.4 per cent.) reported inferior by the Smith method, four (8.1 per cent.) reported vision equal by either method, and nineteen (38.7 per cent.) expressed no opinion.

Wurdemann[13] had reported the visual acuity of forty patients after intracapsular operation as follows:

Good results equal to 6/6 to 6/9 in 34
Poor results equal objects in 2
Failures in 4

Greene[14] reported visual results in twenty-two intracapsular extractions which he performed after reading Smith's paper,[15] and with no other instructions, with the following showing:

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[4] Smith: Arch. Ophth., xxxiv, 602.
[5] Gidney: Tr. Bombay Med. Cong., 1909, p. 502.
[6] Vail: Arch. Ophth., January, 1912.
[7] Smith: Ophthalmoscope, 1912, xii, 170.
[8] Lister: Tr. Bombay Med. Cong., 1909, p. 521.
[9] Lister: Tr. Bombay Med. Cong., 1909, p. 523.
[10] Oxley: The Complete Removal of Cataract, Tr. Bombay Med. Cong., 1909, p. 512, and Indian Med. Gaz., March, 1908, p. 512.
[11] Gidney: Tr. Bombay Med. Cong., 1909, p. 496.
[12] Senile Cataract, The Cleveland Press, Chicago, p. 94.
[13] Wurdemann: The Expressions of Cataract in the Capsule with Report of Forty Operations, THE JOURNAL A. M. A., Sept. 4, 1909, p. 782.
[15] Smith: Arch. Ophth., 1906, xxxiv, 601.
[14] Green: Am. Acad. Ophth. and Oto-Laryng., 1906, p. 70.

68.3 per cent were mature.
18.2 per cent were immature.
4.5 per cent were traumatic.
9.0 per cent were hypermature.
Vitreous loss, 4.1 per cent.

Capsule ruptured in 50 per cent. of cases, average of vision of fifteen given glasses practically 20/40. This would probably have been higher had the patients been more carefully tested, but the high average vision after the operation was not appreciated at the time.

In 1909, Greene[16] presented a report to this Section on the visual results of seventy-five operations made by the Smith method, as its technic was then understood, which averaged 20/27, as follows:

TABLE 2.—SUMMARY OF VISUAL RESULTS. TOTAL NUMBER SEVENTY-FIVE

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
3	20/15	4	20/40	2	P. L.
30	20/20	9	20/50	1	0
18	20/30	5	20/70	3	No record
				75	

This was the work of an amateur, before Greene had had the advantages of instruction at Smith's clinic.

Ray[17] has reported the average visual results of eight of thirteen Smith operations performed by himself as 20/30. Seven were immature, four were mature and two were hypermature; one had slight loss of vitreous.

In May, 1908, Wood of Chicago and Jackson of Denver spent two days in Dayton; they witnessed nine operations, and examined with all the instruments of precision forty-seven other patients who had been operated on, from a few days to three or more years previously.

Wood[18] read a report at Atlantic City in June of the same year, in the discussion of Greene's paper, "Experience in the Expression of Cataract in the Capsule by the Smith Method," and said later, in 1910, that he still contended for the truth of the remarks he made in the discussion at Atlantic City. In speaking of the vision of these patients, he made the following statement:

> Of the forty-seven examined by the ophthalmoscope, etc., I never saw a single case of glaucoma or detachment of the retina. . . . The proportion of unusually good vision (20/15 to 20/20) was, I believe, greater than results from ordinary methods of extraction. I have not only found central vision in those cases already reported by Dr. Greene to have been correctly reported, but, in some six instances, to have been better than that set forth in the report.

This is a circumstance that lends plausibility to the assertion that, while sight tends to deteriorate, chiefly as the result of opacification of the capsule during the first six months following the older methods, it improves in the Smith operation, owing to the absorption of intra-ocular bleeding and the reestablishment of normal vascular conditions.

If from this slight experience I might be allowed to venture an opinion as to the place of the Smith operation in ophthalmic surgery, I would say that, given an experienced, intelligent and skilful operator, working in conjunction with the tried and equally experienced assistant, and counting successes in cataract extraction entirely from the amount, quality and persistence of central sight six months after the operation, the Major Smith procedure is the best method for extracting all forms of senile cataract with which I am acquainted.

In patients under 70 years, in good physical condition, who have good perception and projection of light and with uncomplicated operating and healing, we are disappointed if we do not secure vision of 20/20, in many cases 20/15, and in a few cases even 20/10; this high grade vision is seldom secured by the regular operation and if secured, tends to deteriorate from opacity and wrinkling of the capsule.

In the following tables, we show the vision obtained after rejecting the classes of cases already referred to. We have included all the cases in which we have operated by the Smith method, the patients having been cared for by ourselves, of which we have a complete record while in the hospitals and of such as have returned for examination and glasses. They do not include any of Greene's 356 operations made in India. These statistics only include the visual records of a few of the large numbers of exhibition operations which have been performed away from home, in strange hospitals, often without a trained assistant, and in the presence of a crowd of spectators. An operator is not generally at his best under these conditions, and visual results are not likely to be up to the standard of his own hospitals.

In a few cases these visual results have been secured only by a secondary operation. In several other cases, already referred to, constitutional and local treatment have been of great service in securing these visual results. A condensed summary of the results of the 203 operations will be given together with a few explanatory remarks.

ST. ELIZABETH'S HOSPITAL.—TOTAL NUMBER OF OPERATIONS 93; AVERAGE AGE OF PATIENTS 63.64

Immature cataracts	55
Mature cataracts	36
Hypermature cataracts	2
Total	93

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
3	20/10	3	20/40	1	20/200
22	20/15	4	20/50	2	P. L.
29	20/20	5	20/70	1	0
17	20/30	2	20/100	4	No record
				93	

In the eighty-nine cases of which we have records there was an average vision of 20/22. In the eighty-six cases which do not include the three failures, there was an average of approximately 20/21.5.

Vision after four discissions for thickened hyaloids was 20/15, 20/20, 20/20 and 20/20 respectively.

First class results, 96.6 per cent.

SOLDIERS' HOME HOSPITAL.—TOTAL NUMBER OF OPERATIONS 110; AVERAGE AGE OF PATIENTS 67.95

Immature cataracts	44
Mature cataracts	59
Hypermature cataracts	7
Total	110

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
1	20/10	9	20/40	5	P. L.
14	20/15	10	20/50	3	0
32	20/20	8	20/70	6	No record
18	20/30	2	20/200		
				110	

In the 104 cases of which we have records there was an average vision approximately 20/27. In the ninety-six cases (which do not include failures) there was an average vision approximately 20/25.

Vision after iridotomy for six high pupils averaged 20/70.

First class results, 92.3 per cent.

TOTAL LIST.—AVERAGE AGE 66 YEARS

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
4	20/10	12	20/40	3	20/200
36	20/15	14	20/50	7	P. L.
61	20/20	13	20/70	4	0
35	20/30	4	20/100	10	No record
				203	

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[16] Greene: Experience in the Expression of Cataract in the Capsule by the Smith Method, THE JOURNAL A. M. A., Sept. 4, 1909, p. 777.

[17] Ray: Lancet-Clinic, July 22, 1911, p. 54.

[18] Wood, Casey A.: THE JOURNAL A. M. A., Sept. 4, 1909, p. 797; see also Practical Medicine Series, 1910, iii, 62.

Of the four total failures, three were lost by purulent infection, one was lost by non-purulent infection (iridocyclitis).

Of the seven patients who had only perception of light, two had kerato-iritis (delayed healing), two had vitreous loss (excessive), one had macular choroiditis, one had myopia 20 D. (severe reaction, probably detachment of retina), and one had iridocyclitis (from exposure).

Of the ten without visual records, two were absent without leave from the "Home," three died while in the hospital, two left the "Home" before vision was tested, and three have not returned for examination.

The 193 patients of whom we have records of vision had approximately 20/25, and 182, not including the failures, had vision approximately 20/23. Total first class results, 94.6 per cent.

VITREOUS LOSS ST. ELIZABETH'S HOSPITAL

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
2	20/15	1	20/10	1	P. L.
2	20/20	1	20/50	1	No record
3	20/30	1	20/70		
				12	

One patient expelled lens and a large quantity of vitreous on completion of the section. This would have happened in any operation, but it is counted.

Eleven with records had approximately 20/28, after deducting 1 P. L., and ten had approximately 20/25.

VITREOUS LOSS SOLDIERS' HOME HOSPITAL

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
1	20/15	1	20/10	2	P. L.
4	20/20	4	20/50		
4	20/30	1	20/70	17	

In seventeen cases there was approximately 20/33 vision; after deducting two failures the remaining fifteen cases had approximately 20/29.

These tables seem to show that vision is not so good after vitreous loss in patients who average 67.95 as in those who average 63.64 years.

TOTAL NUMBER OF VITREOUS LOSSES IN 203 OPERATIONS

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
3	20/15	2	20/10	1	No record
6	20/20	5	20/50	3	P. L.
7	20/30	2	20/70		
				29	

Percentage 14.2.

Twenty-eight patients had vision of approximately 20/31; twenty-five, approximately 20/29.

The average strength of cylindric lenses in 117 cases was 2.37 D.

The average amount of astigmatism in 182 cases (the total number refracted) was 1.52 D.

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ABSTRACT OF DISCUSSION

Dr. J. W. Millette, Dayton, O.: In our report we have excluded the ruptured capsule cases. We thought at the time the paper was written that the rupture of the capsule robbed the operation of its most distinctive feature, and it was no longer an intracapsular operation. Since the paper was placed in the hands of the Association I am convinced that this is not the fairest way to look at the question. This is one of the complications of the operation, and will come to all men who operate by this method. In the 210 operations here considered there were sixteen ruptured capsules, or 7.3 per cent. As the retention of cortical matter and prolapse of the iris are very undesirable complications in the capsulotomy method, so is ruptured capsule in the intracapsular method a much to be regretted complication. It would not be considered wise to exclude the former from statistics of the capsulotomy method nor should the latter be excluded from our statistics. I desire, therefore, to give the following brief statement of some of the findings including the ruptured capsule cases. There were sixteen cases not included on account of ruptured capsule. In one vision was *nil*, in one other it was perception of light. In fourteen others the vision ranged from 20/200 to 20/15. The average of the sixteen, including the two failures, is 20/37. Of the fourteen, excluding the two failures, it is 20/32. Adding these sixteen to the 193 cases of which we have record, considered in the paper, we have a total of 209, the average vision of which is 20/25.25. Adding the fourteen with ruptured capsule to the 182 of the paper all of whom had vision 20/200 and better, we have a total of 196 with an average vision of 20/23.5. We also excluded from our report eight cases with corneal opacities, in which operation was performed with the hope only of slight improvement of vision, two amblyopic eyes operated on and not recognized, a condition of which we were informed after the operation. Two cases of undiscovered optic atrophy, and one of central choroiditis were also excluded from the statistics.

Dr. D. W. Greene, Dayton, O.: Perhaps an explanation of the method of testing the vision of these patients will not be amiss. This seems desirable as we have not found among those who have visited our clinics and examined large numbers of cases entire unanimity of opinion as to the best methods of securing and recording the vision of cataract patients. The difference of opinion relates to the illumination of the card, the color of the card and letters, whether the patient should read every letter of a line to be credited with it, or whether 4/5 or 7/8 should entitle a patient to credit for the line, and on different cards and on different days. Our method has been as follows:

Distance 20 feet, Snellen's cards, white background and black letters, or black background and white letters in an illuminated cabinet; the test for astigmatism has been carefully made and we have used the best record obtained after an average of three tests. In a majority of cases, during the first month or six weeks after operation patients will read one and sometimes two more lines of the black card with white letters than on the other card. Many of the cases of this series have been refracted by outside men and the vision in the tables is their finding, not ours alone.

Dr. Walter R. Parker, Detroit: The only common ground we have with those who have been in India is "visual results obtained." Drs. Greene and Millette say that Major Smith himself counts his success or failure entirely by actual appearance of the eye from one week to ten days after operation, and not by the test with lenses.

It seems to me that Drs. Greene and Millette by their exclusion of retained ruptured capsule cases have given us the results that will be obtained by the Smith operation when perfectly performed on an otherwise normal eye, rather than the result of a clinical procedure for the removing of the crystalline lens which will give a better average than is now obtained by the older methods. I can understand why a case in which an accident occurs during the operation up to the time when the lens is to be delivered might be excluded from their table, but any result that might arise in consequence of an accident in the attempt to deliver the lens in its capsule should militate against the operation as a clinical procedure. For instance, if on completing the corneal incision, the patient becomes unruly, and the lens is forcibly expelled with loss of vitreous, or if an accident occurs during the iridectomy, it seems to me these cases should not be included in compilation of visual statistics for the Smith operation; but if the capsule is ruptured and left behind during the delivery of the lens in this operation, I think such cases should be included. In the same way, cases with any disturbance of the anterior vitreous which might arise as a consequence of the operation, should be included. It would be just as fair to exclude from our statistics of the older method all cases in which some cortical matter is left, on the ground that if the operation be perfectly performed, no cortical debris will remain. No definite scientific conclusion as to the relative efficiency of different methods of procedure can be reached until we have more uniform standards of comparison.

I have no doubt whatever that the combined operation with capsulectomy is a better procedure in the majority of cases than either the simple method or the extraction in the capsule. On the other hand, I believe the operation of extracting the lens in the capsule is well adapted to certain cases and that the characteristics of the cases to which it is applicable, while not yet completely known, will ultimately be determined.

The most successful cataract operator will be the surgeon who selects the method of procedure best suited to the individual case rather than he who adopts any one method of procedure to the exclusion of all others.

DR. HIRAM WOODS, Baltimore: I saw Dr. Greene operate, at his invitation, and he gave me opportunity to examine a number of patients whom he sent at random. I believe that the visual results by a careful examination would have been better than in the hurried examination I was able to make. Two or three things struck me. One was the greater visual acuity when examined with black background and white letters. I recall one man who read with a plain spherical of 11 D. 20/15 with the black card and white letters and fell down to 20/30 with the black letters on the white background. Dr. Greene told me that that was a pretty constant observation.

Another thing that struck me was that with several patients I obtained greater visual acuity with the spherical, without attempting to correct the traumatic astigmatism, than in my own cases; in other words, contrary to what I expected, there seemed to be less postoperative astigmatism than I usually observed. A third point is that in spite of the acuteness of vision a number of patients had definite small punctate deposits on the hyaloid membrane. What they were from I do not know. Dr. Greene said they were quite common. There was no question that in the patients Dr. Greene allowed me to examine the visual acuity was greater than we are accustomed to get in our primary tests after capsulotomy.

EYE COMPLICATIONS CAUSED BY HOOKWORM DISEASE

WITH SPECIAL REFERENCE TO THE FORMATION OF CATARACTS

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Eye complications caused from or associated with hookworm disease have been known for many years. Rampoldi,[1] in 1880, first mentioned these changes, and he described a patient "who passed a great number of eggs in the stools and who only complained of slight asthenopia. The retina was discolored, characteristic of edema of this membrane." Another case in a woman "who died of hydremia caused from this disease, in which there was a true exudative retinitis in each eye." Later, in 1892, the same author describes a case of retinal hemorrhage, and also a case, in a girl of 19, in which he had observed a strabismus which rapidly disappeared when the patient was cured of the hookworm disease.

In my search through the literature of the older writers on the subject of *Ankylostoma duodenale* or hookworm disease of the Old World, I could find but few references relating to eye changes, and our present-day writers and clinicians have added little to what has been recorded.

In addition to the eye changes above mentioned by Rampoldi, Nieden,[2] a later writer, much quoted, describes fully his experience in 180 cases observed, estimating that fully 7 to 8 per cent. had some retinal changes, viz., an anemia, arterial pulsation, serpentine veins, great pallor of the disks and hemorrhages. While he admits that any or all of these might occur in chlorosis or other anemia, there is in his mind a characteristic picture of retinal hemorrhage due to hookworm disease. These hemorrhages occur in the peripheral portion of the retina, more numerously and earlier than near the papilla or macula, and are frequently herded together in groups of punctate form close to each other without melting into one another. He also describes another form of hemorrhages which occur in stripes and follow the course of the vessel. These lie near the papilla.

A third form is mentioned as occurring in advanced cases in which there is marked extravasation of blood into the retinal tissue. The two latter types are not wholly characteristic of hookworm disease.

Fischer[3] also mentions retinal hemorrhages, and Hansell's[4] case was most interesting. Both papillæ were swollen and their outlines lost. There were linear extravasations of blood in one eye and subretinal hemorrhage in the region of the fovea in the other. The retinal arteries were distinguished as transparent lines and appeared to be filled with water rather than blood.

Hisaki,[5] a Japanese observer, E. Fischer,[6] Fuchs,[7] Lippitt[8] in Porto Rico, and others, corroborate what has been previously mentioned relative to retinal changes, which makes it the most common of ocular complications.

Other changes of a general character beside the retinal alterations and Rampoldi's case of strabismus are recorded in the vast supply of literature on hookworm disease, written by clinicians of general medicine. They are particularly mentioned by Ashford[9] in his exhaustive report of the Hookworm Commission in Porto Rico, and are as follows: blurred vision, dilated pupils, diplopia, unilateral and bilateral nystagmus, amaurosis, restriction in visual field, night blindness and other asthenopic symptoms which might occur in any protracted illness in which there is an anemia.

Ashford lays particular stress on night blindness; he says that it is not a symptom to be ignored. It is variously estimated by different observers as occurring in from 3 to 24 per cent. Corneal ulcers have been reported by Ashford in one of his series, also by Mauldin,[10] while Calmette and Breton also mention a discoloration of the choroid. Lutz[11] mentions a very rare symptom, that is, chemosis of the bulbopalpebral fold, which occurred three times in twenty-five cases.

Of diagnostic importance, says Stiles, our foremost worker in hookworm disease in this country, is the condition of the pupil. This phenomenon is as follows:

> If the patient is directed to stare intently into the observer's eyes there will be noticed a symptom which is difficult to describe, but which I have found more constant than all others noticed, namely, after a moment (the length of time apparently varying slightly according to the degree of the disease), the pupils dilate, then the patient's eyes assume a dull blan

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[1] Rampoldi: Cong. périod. internat. d'ophthal., 1880, Milan, 1881, p. 281; Ann. di ottal., Pavia, 1892, xxi, 37.

[2] Nieden: Compt. rend. Cong. internat. de méd., 1897, Moscou, 1898, vi, Sec. 2, p. 60; Centralbl. f. prakt. Augenheilk., Leipzig, 1903, xxvii, 207.

[3] Fischer: Ueber d. Ver[illegible] Stuttgart, 189[illegible], xxii, [illegible]

[4] Hansell: Tr. Am. Ophth. Soc., Hartford, 1901, p. [illegible]

[5] Hisaki: Chiba Igakkwai Zasshi, Tokyo, [illegible] No. 47, p. [illegible]

[6] Fischer: Centralbl. f. prakt. Augenh., Leipzig, 18[illegible] xx, 51.

[7] Fuchs: L'Ankylostomiase [illegible] Calmette and Breton, Paris, [illegible] p. [illegible]

[8] Lippitt: See Ashford's report, Note 9.

[9] Ashford: Uncinariasis in Porto Rico Com., Third [illegible] 808, 1911.

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